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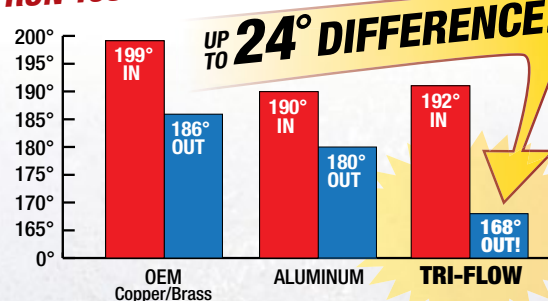


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**ON THE COVER:**

John Murray from Greenwood, Indiana, brought out his 1957 Chevy powered by an LS2 for its sixth Power Tour®. When asked why him and his buddies keep coming back year after year, John said, "Our wives let us go." Photo by Larry Chen.



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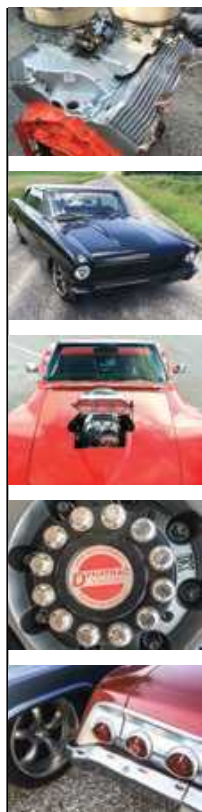
BRAKES



SUSPENSION



Hot Rods are Social Media's Fuel



Standing in Randy Grubb's garage, Octane-in-Chief of Blastolene (RandyGrubb.com), back in 2008, I saw the future. Grubb told me, "When I was a kid, when you did something cool, strangers would give you one of these" [Grubb gave a thumbs-up salute]. "But now when I drive past in this thing," he motioned back to his V12 Peterbilt known as Piss'd Off Pete, "people hold up their cellphone cameras at me." He was flattered, but a little put off by all the cellphone photos because he thought people should be able to enjoy cool stuff in the moment.

I've been in this industry long enough to remember when we ignored the Internet, Facebook didn't exist, and I never dreamed of having a camera on my phone. Like many of you, part of me wishes that none of those things ever happened—but I can't stop them. Instead, I'm reminded of what Grubb taught me, and want to say that cars are the greatest thing that could have ever happened to smartphones and social media. For every kid with a phone you see on Facebook, Instagram, Twitter, YouTube, or Periscope, nothing will give them cooler stuff to share and brag about than the hot rods we know and love.

For decades, people like us had to go places to find our kind. Races, car shows, swap meets, and speed shops were how you found car guys. Magazines

increased that reach, but until the Internet and the proliferation of social media, we had to go places to be a car guy. Now the world comes to you.

Don't worry if you don't know anything about social-media networks. You don't have to care about any of it if you don't want to. HOT ROD will be on all of them, and while it's exhausting, it's also the HOT ROD way. We'll always come to you.

When I took over HOT ROD, David Freiburger had more than 38 ways we reached customers. In the last two years, we've only added to that. The great news is cars and hot rods are fuel for every new social channel that comes out. There's no other way to make more cool videos, photos, timelines, or toys than with a car. Cars matter everywhere and make you look better doing whatever it is you're doing.

Before the proliferation of social media, there was a fear kids didn't care about cars the way we did. Concerns they'd stay home and play video games instead of going out and doing the things we did. Those fears were unnecessary.

Today, no kid can stay home on the couch. They'd have the most boring Facebook page imaginable—but get a car, and it fuels their social media needs. Because of that, I'm certain cars will continue to be part of everything that's cool.

➤ HOTROD.COM/David-Kennedy

[By no fault of his own, John Murray almost burned me with his cigar while we took this selfie with his cover car. Perhaps this photo is on his Facebook page.]



IN MY OPINION

Great Advice
"All great and honorable actions are accompanied with great difficulties, and both must be enterprised and overcome with answerable courage."

— William Bradford, 1630

Presidential Power
2016 is an election year, so I want to build my own version of the Presidential Limo known as the Beast. I'll start with a 2008 Cadillac STS (or CTS) and fit it with an 8.1L breathing through an 81mm turbo for around 810 hp. I'll call it Beast 2.0 and see if we can get a candidate to road-test it. Think Trump will be up for that?

Hosing a Hellcat
We just dyno'd a 2015 Dodge Hellcat Charger. Let me go on record as saying the 707hp Hellcat cars are some of the best things that could've happened to the editor of HOT ROD. So I won't feel bad when I say our Hellcat made 583 hp at the wheels on a chassis dyno—and my Cummins diesel-powered truck made 609 hp. I will feel bad when I tell you it'd be cheaper to buy a Hellcat than build another version of my pickup.

➤ HOTROD.COM/Brandan-Gillogly



I'm still a bit in withdrawal after returning from Power Tour®. Elana and I just finished a 2,000-mile road trip, but somehow it wasn't the same. I think it was the food. Anyone know where to get crawdads and gumbo in Los Angeles?

➤ HOTROD.COM/Elana-Scherr



I think all racing folks are good folks, but some recent dragstrip forays have me thinking drag racers might be the nicest of all. Road racers, drifters, off-roaders, and roundy-rounders, you're welcome to try to prove me wrong.

➤ HOTROD.COM/Thom-Taylor



I don't know how or why, but this year's Power Tour® had more cars, yet seemed a lot less congested and drama-plagued than in previous 'Tours. Size has not been a target, but it appears to enhance the experience.

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Take It Out and Drive

The siren song to get out your roadsters and drive has been a recurring theme at HOT ROD since the early days, with some editors taking the call to extremes. At HOT ROD's sister pub, *Car Craft*, Dick Scritchfield formed the LA Roadsters in 1957 in a bid to unify SoCal roadster owners to swap stories, parts, and drive on weekend tours. Soon HOT ROD staffer Tex Smith joined the club. By 1970, Smith and Tom Medley started the Street Rod Nationals, with help from the *Rod & Custom* staff. But back in the mid-1960s, the call to drive cast a wide net when numerous California roadster clubs—including the LA Roadsters, Bay Area Roadsters, Riverside Roadsters, San Jose Roadsters, and Valley Roadsters—proposed meeting

up roughly in the middle in Pismo Beach for the first-ever Roadster Roundup, shown here in this 1966 shot by Smith.

Around 60 roadsters showed up for this first Roundup, which is still going strong almost 50 years later. Unfortunately, we can't identify all of the cars—maybe you can help. Here's what we do recognize: up front is Duane Kofoed in his HOT ROD cover 1929 track-nose roadster, followed a few cars back by Ted McMullen in his T-bucket, Bernie Kretzschmar's Deuce, Jim Thomas' Deuce, Ted Wingate's Deuce, Jim Travis' full-fendered Model A, Sam Conrad's A-V8, Dick Scritchfield's Deuce Phaeton, and a couple of cars back is John Monteiro's T touring, and finally Ron Gilbert's T-bucket.

➤ HOTROD.COM/Thom-Taylor

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RACE DAY

Monday, 9/14

Gateway Motorsports Park

Madison, IL

- Gates open 7:30 am /Racing until 1:30 pm or until complete
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RACE DAY

Tuesday, 9/15

Lucas Oil Raceway

Indianapolis, IN

- Gates open 7:30 am /Racing until 1:30 pm or until complete
- Tickets: \$10 for 13 and above/Children 12 and under free

RACE DAY

Wednesday, 9/16

Great Lakes Dragaway

Union Grove, WI

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- Tickets: \$10 for 13 and above/Children 12 and under free

RACE DAY

Thursday, 9/17

Cordova International Raceway

Cordova, IL

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FINALS

Friday, 9/18

Gateway Motorsports Park

Madison, IL

- Gates open 11:00 am /Racing from 2:30 pm to 8:30 pm or until complete
- Tickets: \$15 for 13 and above/Children 12 and under free

HEADS-UP!

Saturday, 9/19

Gateway Motorsports Park

Madison, IL

- Gates open 9:00 am /Racing from 11:00 am to 3:30 pm or until complete
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#HOTROD

Scene by Readers: Featured Artist Dominick Damato

If there's a bumper-dragging street car in the Midwest, it's likely you'll find Dominick (Dom) Damato with his camera aimed at the undercarriage. Damato is a service tech for Stratasys 3D Printing, but his love of technology isn't limited to the new stuff; he's equally stoked about old-school hot rods, which is why he spends his free time traveling to racetracks in search of the highest wheelies and the coolest heads-up drags.

Damato says he's been into cars his whole life, but the photography started more recently, and he's been practicing and acquiring new gear over the past five years. "Instagram turned into a place to show behind-the-scenes photos and share work fairly easily all from a mobile device," he says, adding that he also interacts with the car and photography communities through Facebook groups, forums, Bangshift.com, and Dragzine.com.

When asked to pick a favorite fellow photographer, he declared it impossible. "There are too many," but he did mention Wes Allison, Pepper Yandell, and Robert McGaffin in his long list of recommended shooters.

What's the secret to a good car shot? "I am the worst for giving advice, mainly because I am always in the learning phase myself," Damato said. Maybe good photographers never stop learning. Look through his photos and decide for yourself.

➤ HOTROD.COM/Elana-Scherr

| INSTAGRAM NAME | @DRD_Photos |
|-----------------|------------------------------------------------------------------------------------|
| WEBSITE | DRD-Photos.smugmug.com |
| CAMERA | Canon 5D MKIII and a Canon 7D |
| FAVORITE FILTER | It depends on the picture. If it's a phone shot, it's a 50/50 if it gets a filter. |
| BEST TIP | Move your feet to get your shot lined up. Don't stay in one spot. |
| CARS | 1987 Monte Carlo SS, 2006 Pontiac Grand Prix GXP |

01 "This is an example of what I love about small-tire outlaw racing. Cars with so much power they literally come off the ground, not just at the starting line but hundreds of feet into the run."

02 "Dave VerSchave's 1955 Chevy is very special to me because it literally made a dream come true," Damato said. "It was my first feature in HOT ROD. Aside from that, it is a stunning car and it runs mid-10s [naturally aspirated] through a manual shifter."

03 "Racing technology evolves so fast each year that nearly every big race now has record-setting numbers being thrown down and the excitement is through the roof."

04 "My first Drag Week ever was 2011, and I was just a passenger along for a long, hot ride."



01



02



03



SEND YOUR PHOTOS

Do you have a collection of awesome car photography? Tips on how to take better shots? If you or someone you know should be featured in #HOTROD, let us know at HOTROD@HotRod.com or tag us on Instagram or Twitter @hotrodmagazine.



Hot Rod Anything! Gravity-Powered Coffin Racer



Built for the Denton, Texas, Day of the Dead festival in 2014, this gravity-powered downhill racer was one of 51 coffins built by teams from all across the country for the annual race. What makes this racer rare is that it was one of only three built for the race that started with an actual coffin. Michael Gast from Maize, Kansas, bought

the 18-gauge steel coffin from a mortuary where it was new but incomplete. Michael and his team bolted and welded in an angle iron frame in the rear to solidly mount 5-inch-tall inline scooter wheels while the front got a center pivoting, foot-operated, wagon-style steering system. The wheels were mounted inboard and allowed

just 1½-inch ground clearance to give the coffin a floating look but also to give it a low, wind-cheating stance. A simple drag brake was fabricated with a 4x6-inch post and a strip of tire tread. A brake is mandatory and so is a helmet for the driver. Aside from that, the only other rules are no wheel/tire taller than 10 inches and no pedal

power. It qualified 6th out of 51 competitors and was a crowd favorite.

➤ HOTROD.COM/Brandan-Gillogly

“They sold it to me for scrap.”
—Michael Gast

DO YOU HOT ROD EVERYTHING?

If you've hopped up anything that's not a car, let's see it! Hot leaf blower? Bitchin' gas grill? Customized kitchen cabinets? Anything goes. Email pics and details: HOTROD@HotRod.com.



© Courtesy of Michael Gast



Four rear wheels are bolted solidly in place—no rear suspension here.



It's a gravity-powered drag race, so cornering isn't a concern. The front is a simple wagon-style solid axle with steering stops.

ZERO GRAVITY, OR CLOSE TO IT

NASA's Zero-G facility in Brook Park, Ohio, was built in 1966 during the heart of the space race to give researchers a microgravity environment for testing, including combustion and fluid physics. Using a 20-foot-diameter, 476-foot-tall steel vacuum chamber that extends 510 feet below ground, researchers can achieve a free-fall time of 5.18 seconds at 0.00001g by pumping out nearly all the air and dramatically reducing air resistance. NASA's experimental "drop vehicle" is 42 inches in diameter, 13 feet long, and has a gross weight of 2,500 pounds. It is held in place by a bolt that is remotely fractured to start the drop. After the fall, the experimental drop vehicle reaches the decelerator cart, an 11-foot-diameter, 20-foot-deep well of expanded polystyrene beads that slow the vehicle to a stop from 113 mph in about 5 feet.

BBC's Brian Cox visited an even larger vacuum chamber at NASA's Space Power Facility to recreate Galileo's Leaning Tower of Pisa experiment by dropping a bowling ball and feathers both with and without atmospheric pressure in the chamber.

THE FINAL RESTING PLACES OF SIX CAR GUYS

Zora Arkus-Duntov died in Detroit on April 21, 1996, and his ashes were entombed at the National Corvette Museum. Pulitzer Prize-winning columnist George Will wrote in his obituary that "if...you do not mourn his passing, you are not a good American."

Per his request, **Carroll Hall Shelby's** family laid him to rest following a small, private service in East Texas. His children buried Carroll's ashes in the Shelby family section of the Leesburg cemetery on August 29, 2012.

After passing at age 77, **Smokey Yunick's** ashes were reportedly scattered on Victory lanes of various tracks where he'd won races during his long career.

HOT ROD founder **Robert E. Petersen** was interred at the Holy Cross Cemetery and Mausoleum in Culver City, California, after his death in 2007 at age 76. His wife, Margie, was buried next to him in 2011.

Mickey Thompson and his wife, Trudy, are buried in adjoining plots in Rose Hills Memorial Park in Whittier, California.

Henry Ford and his wife, Clara, are buried in the Saint Martha's Episcopal Church Cemetery, also known as the Ford Cemetery, in Detroit, Michigan.

Readers' Projects

✍ Albert Hernandez

Want to share your car with the whole world? Send photos and info to HOTROD@HotRod.com.



Brad Chaulk // Alberta, Canada

This 1974 Nova has undergone a six-year rotisserie build. It is now powered by a 6.0L LS with long-tube headers backed by a TH400.



Mike Vigueria // Hailey, Idaho

Mike recently bought this rad-looking 1946 Dodge pickup from his brother. It currently sits on an S-10 frame with a 350, a 700R4, and 4.11 rear.

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PITTSBURGH PRO

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What Youth, Imagination, Hard Work,
and the **Power Tour** Hath Wrought

✍️ Thom Taylor 📷 Wes Allison



[The eight-week-wonder coming at ya! Despite heat, humidity, rain, and hauling around four hefty dudes, the 1957 Chevy torqued through more than 3,500 miles from its home base of Houston. Though we would suggest taking a bit more time for your own Power Tour® project, this is living proof that the sooner you get into your garage and start wrenching, the sooner you'll be ready to join us for the 2016 Power Tour®.



01



► Oh, nothing could possibly go wrong with this deal: four School of Automotive Machinists (SAM) students took on a derelict 1957 Chevy project with a tree sitting on it, no front clip, no engine or transmission, and rusted-out floors to build for the 2015 Power Tour®—in eight weeks. Optimistic doesn't begin to describe this 3,500-mile Long Haul round-trip scenario.

This wasn't the first time Jud Massingill, the head of SAM in Houston, had put out a challenge to his students to build the school's heap of a 1957 Bel Air into a Power Tour® Long Hauler. But when the siren call went out to students this year, Mike Wilson, Matt Petz, John Gwinn, Oscar Zabek, and Mike's girlfriend, Jackie Perry, came through and not only put together a cool and quick 1957 hardtop but did it with style and no time to spare.

The car had been sitting derelict in Houston under a fallen tree for 15 years when our intrepid team dragged it out of its tumbleweed-hidden grave, got it rolling—which we understand was a feat unto itself—and pushed it into the SAM facilities for a frame-up rebuild. In the process, lots of people and sponsors got on board once this started looking like it might actually happen.

With the body off of the chassis and what

01 The old Chevy has a good presence flying down the highway. LS3, Tremec six-speed, Ford 9-inch rear combination is hard to beat, and combining creature comforts and upgrades like Vintage Air air conditioning, new Camaro front seats, and disc brakes makes for pleasurable long-hauling capabilities.

02 The students responsible for taking the SAM 1957 Chevy from rest to race, from left: Mike Wilson, John Gwinn, Oscar Zabek, and Matt Petz. Also helping with the flames, paint, and build was Jackie Perry (not shown).

03 The LS3 bottom end received Precision Race Components LS7 small-chamber heads, Chevy Hot Cam, and SAM-fabbed dual-throttle-body intake from the school's 200-mph Texas-Mile Camaro. This combo dyno'd at 514 hp at the rear wheels.

04 Fikse wheels mount Michelin all-season radials, and give the 1957 Bel Air a good stance. Heidts' tubular A-arm front suspension and de-arched CCP rear springs and control arms give firm but smooth ride with just the hint of a rake.

“To be honest, we were more focused on the performance than how it looks.”

—Oscar Zabek

was left standing in a pile beside it, the frame was straightened, the Heidts performance suspension was added to the front, new lower CPP control arms, rear springs, and shocks were procured as were Wilwood disc brakes at all four corners, and the rusted body mounts were replaced before it was taken to Tasco Auto Color in Magnolia, Texas, for powdercoating.

One thing that helped the project gain some much-needed time was that the school had previously assembled an LS3 bottom end that was taking up space in the corner of the shop. To it, our crew added LS7 small-chamber heads by Precision Race Components (PRC), the school-brewed billet, four-piece, dual-throttle-body intake manifold, a pair of Nick Williams DBW throttle-bodies, and a 225/227 at 0.050, 0.571-inch lift cam. Some of the accessory drives were scavenged from a late-model Tahoe. A T-56 Magnum six-speed with ACT clutch and flywheel spins a Currie 9-inch Ford rearend with 3.70 gears. Chevrolet Performance, Mahle/Clevite, Holley Performance, MSD, Muscle Rods, and Royal Purple all helped with parts and tech support. A later dyno run revealed 514 hp was getting to the rear wheels.

As you can imagine, the body needed a lot



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01



02



03

A lot of creativity and long nights went in to getting everything hooked up properly.”
— Mike Wilson

WHAT IS SAM?

The School of Automotive Machinists offers a unique curriculum that specializes in building race engines. Its myriad classes focus on engine-block machining, short-block assembly, and cylinder-head porting. By combining lessons in the classroom with practical, hands-on experience in the lab, on the dyno, and at the track, students get a feel for the differ-

ent needs within the arena of performance engine building and racing. Some of its other projects are a naturally aspirated 8.01-second 1999 Camaro, a 2012 COPO Camaro winning BB/SA in numerous NHRA races, a recently acquired 2013 COPO Camaro, and a NMRA 1995 Mustang running low-8-second quarter-mile times.

01 The factory Sierra Gold paint and much of the original interior was deemed satisfactory inside, but the front bench was swapped for 2010 SS Camaro seats, and a new headliner and carpets were installed. Transmission is a T56 Magnum.

of work, starting with the replacement of the rusted-out floors. SPC Rods and Classics let the guys do a lot of the work at its facility in Magnolia, Texas, and helped work out other areas of rust and abuse. Tasco Auto Color chipped in for all body-related materials, including paint. Jackie laid out and taped up the traditional flames, also helping with other aspects of the build.

Surprisingly, the interior was in good shape, but for better support and comfort, 2010 SS Camaro seats were installed and new carpets and a headliner were added. The rest of the interior is original 1957 Chevy. And speaking of comfort, a Vintage Air A/C unit was installed, which the team was thankful for right from the first day of their dripping two-week journey.

02 Matt Petz, who is in the Block, Head, and CNC curriculum at SAM, takes the wheel of the 1957 Chevy. Note the headliner has yet to be installed. The mantra throughout the entire build was from a plaque found inside the car, which said, “If it wasn’t for the last minute, nothing would get done.”

Mike welded up the Pypes exhaust, X-pipe, Borla mufflers, and cutouts—and wired in Holley’s Dominator EFI system before firing the car up just hours before leaving Houston for the Power Tour®. Was the car checked out beforehand? Sure! A 3-mile sprint deemed the car roadworthy, and within an hour the team of four loaded their stuff in the trunk and headed off for the 1,100-mile trip to Madison, Wisconsin, for the first day of the 2015 Power Tour®.

But not so fast! About 200 miles into the trip, an axle seal announced itself with that distinct smell only rearend lube makes. As the sidelined team accessed their options, Mast Motorsports drove past, also on its way to Power Tour®, and offered assistance. With the axle bearing pressed back onto the

03 The accessory drive was scavenged from a 5.3L Tahoe, and to accommodate the stock steering, a Holley oil pan was utilized, which clears the steering linkage. All engine-bay sheetmetal was powdercoated at Spectrum Powder Coating and Rods and Classics in Magnolia, Texas.

axle and a spot-weld added to make sure it didn’t back out again, the rest of the trip was uneventful—if you can call a 3,500-mile trip with four students in a high-revving, flamed 1957 Chevy uneventful.

A dream come true, memories that will last forever, a two-week vacation cruising the USA in your 1957 Chevrolet—this is the promise of what hot rodding can be and is. These four students and Jackie have a tangible legacy they will hold, no matter what car opportunity pops up in the coming years, be it a cool job with a Top Fuel team or just the framework to tackle the next never-gonna-happen challenge that presents itself. HOT ROD congratulates you! **HR**

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✍ Elana Scherr

📷 Elana Scherr, Evan Smith, and John Raphael

(Cobra) Jet-Setting

Driving Ford's **Fast Mustang** at an NHRA Stock Eliminator Race

➤ You're being chased by a bear. While you run from the bear, you have to assemble some Ikea furniture from directions that are being held by a kid on a trampoline. Everything is loud and everything is vibrating. Don't mess anything up.

That's about how I felt in my first run in Anthony Bongiovanni's Resource 1-spon-

sored 2014 Cobra Jet Mustang FS/E Stocker. There was too much to do, not enough time to do it, and I did it all wrong. My burnout was weak, I rolled too far in staging, was late on both shifts, and forgot to check the car's weight on the scale. I still ran a 10.21 at 133 mph.

Today's Cobra Jet Mustang is a track-only

drag car with a family tree that blossomed in 1968, when Ford-sponsored-racer Al Joniec showed up at the Pomona Winternationals with a 428-powered Mustang and put all the other Super Stockers back on their tow bars. Ford brought back the CJ in 2008 as a limited edition "body-in-white" drag package eligible for NHRA Stock and Super Stock



classes. The original racing Cobra Jets ran high-11-second quarter-miles at around 115 mph. A modern CJ in its slowest, naturally aspirated configuration is capable of low-10-second passes at more than 130 mph. The supercharged version will put you in the 8s. Ford makes 50 each year. People go to racing school to learn how to drive them. I was not one of those people.

It wasn't supposed to be like this, entered in my very first NHRA Stock Eliminator race, with only three runs in the car and all of Division 1 at Maple Grove in attendance. The original plan was to arrive early for a test-and-tune day before the NHRA event started. I could make some partial runs with help from experienced Cobra Jet racer Evan

Smith and the car's owner, Anthony Bongiovanni, get a feel for the launch technique, find my way around the reaction time, and get used to all the gear, belts, and window nets required to pass safety inspection. That was a really good plan, but then it rained. It didn't rain a lot, just enough to cancel the test day, but I did get some really good advice.

"Sit in the car, put your gear on, and then go through the whole process in your head, from fastening the belts to the burnout to staging to shifting and exiting the track. Do it until you can do it with your eyes closed." So that's what I did. Every free minute I had that day and the next morning, I spent strapped in the race car. I slammed the

shifter till my wrist hurt and I practiced the line-lock till there was an impression of the button on my left thumb. I did it until I could do it with my eyes closed, and by then, it was time for the first qualifying run.

Racing is waiting, followed by a mad rush to lanes, followed by more waiting. As soon as I heard the call for Stock, I wiggled into my firesuit, threw my helmet and gloves in the passenger seat, crawled over the cage crossbar into the car, flipped on the ignition, fuel, and water pump, and...nothing happened. I crawled back out to unhook the battery charger and turn on the main power before getting back in the car and going through the switches again. The Cobra Jet is surprisingly tractable for a 10-second race

COBRA (JET-SETTING)



[Anthony Bongiovanni runs a tech company called Micro Strategies. He got into drag racing when his daughters asked to try running Jr. Dragsters. They've since graduated to Cobra Jets, of which he owns seven. He invited me to drive his Stocker while he competed in the Super Stock classes. "I got into racing too late to tune a carb," he said. "But I like computers, and I can use those skills on these cars."]



[The Cobra Jet Mustang doesn't look wild, but it's a track-only, open-headered drag monster that has little in common with its street-legal GT brethren. For \$100,000, you can buy a ready-to-run racer straight from your Ford dealer, or through Ford Racing, build one with factory-tested racing components.]



[The CJ's engine is a 13:1 Ford 5.0L measuring 308 ci, with a bore of 3.681 inches and a stroke of 3.649 inches. Block, crank, and heads are Ford components, CP pistons on Manley rods swing on the crank, and a hydraulic Comp Cams bumpstick with 0.519-inch lift gives the valves a reason to move. The composite intake is Ford Cobra Jet specific.]

car, but it still takes two feet to keep it running, and there are no mufflers softening the bark of its 13:1 5.0L engine, which even at idle penetrates your brain and rattles the gated shifter in your hand.

I was so excited to get to the waterbox that I rolled right past the track official, did a stumbling, soft burnout, and generally messed up the run. Despite the fact that I revved the car so high that the rpm map displaced Mount Everest as the world's highest peak, Anthony didn't kick me out of his \$90,000 limited-edition race car. He just suggested I shift a little sooner and lowered the rev limiter.

Qualifying round 2. I didn't feel like John Force yet, but at least I shifted to Second before it was time to shift to Third. The speed at which things happen in a 10-second run is astounding. The launch pushes you back so hard you'll expect to see your imprint in the seat back afterward. The scenery becomes a watercolor smear, the shift light an insistent burr in the corner of your right eye. The exhaust note that shook everything at the start line is a high scream, almost a non-sound. It's quiet and smooth at the top end, and just when you think you can keep going, right off the earth's curve and into orbit, it's time to stop, slow, turn off

the track, take account of all your limbs, still attached, your heart, not exploded, beating again, resume breathing.

Flush with success, I exited the track and waited my turn to roll over the scales where the CJ and I weighed in at 3,085 pounds, safely above our class minimum of 3,070. "Have you done a fuel test yet?" asked the woman working the scale and she handed me a small plastic cup, then motioned me forward. The Mustang had an Aeromotive fuel bypass that the crew had shown me the day before, but I couldn't seem to get it to work. I must have looked helpless enough that another racer—who turned out to be



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1973

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THROUGH
1993

1955
THROUGH
1957

1948
THROUGH
1996

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THROUGH
1981

1964
THROUGH
1987

1947
THROUGH
1998

1967
THROUGH
1981

1964
THROUGH
1972



[You can run in either an automatic or stick-shift class. Our Stocker was a manual-valve body C4 auto, built by Select Performance, with an 8-inch torque converter and stall speed of 5,600 rpm, put through its paces with a gated Precision Performance Products shifter.



[COPCO Camaro racer Jack Matyas suggested getting used to a new race car by sitting in the seat with gear on, and running through the motions of racing to train your body to do things right, even in the heat of competition.



[Sadly, no matter how much I practiced reaction times on my Jegs app, I never quite got those dialed in. Anthony did much better in his runs in the Super Stock class.



[No 18-inchers on this pony. Billet aluminum Mickey Thompson 15x10-inch wheels offer a place to mount the Hoosier 30x9-15 slicks. It was up to me to remember to check them before each run. We ran the tire pressure at 21 psi in the rears and 35 psi in the fronts.

multitime champion, Lee Zane—came over to assist me, and after a few seconds of failure he asked, “Is the ignition on in the car?” Uh, no. I flipped the switch and he filled the sample cup. “Go ahead and test hers first,” he told the NHRA official at the fuel station. The tech picked up the cup of gas that was in the test stand and tossed it in favor of mine. Then he looked stricken as he realized he hadn’t tested Lee’s sample before dumping it. Lee shook his head and headed back to his car for a new pull. My VP C12 passed inspection and I headed back to the pits before I could cause any more trouble.

I woke up the next morning to the marvelous sound of high-compression engines being warmed up in the pits and the less marvelous face-punched feeling of full-blown hay fever. I repeatedly turned down offers of Benadryl, afraid to dull my overtaxed brain. As it turns out, this was a

mistake, and not just because sneezing in a closed-face helmet is disgusting.

I had one remaining qualifying run, which resulted in the best time so far, a 10.15 at 132 mph. Can your 302 Mustang do that? The car ran arrow-straight, and all my shifting practice had paid off, but I was still having some trouble at the starting line, unable to lock in exactly the right amount of pedal to keep the rpm at 3,000 without rolling deep in the staging beam. Unlike many drag cars, the Cobra Jet was fully foot-braked, and it was up to me to apply enough brake to hold the car with one foot while raising the revs to just the right launch rpm with the other. Although it’s allowed, my CJ had no two-step to allow the driver to mat the throttle while waiting for the go-light. Rev it up too high and you’d roll through the brake—not enough and you wouldn’t leave hard enough, or consistently. The dif-

ficulty was that the 5.0L was really fidgety until around 3,500 rpm, so finding a stable point below that, especially in the short time between courtesy staging and the first yellow, was more challenging than I expected.

Even with my weak starts, the Cobra Jet ran 0.80-second under the index, low enough to put me in the number 70 qualifying spot out of the 112 racers in the class. It wasn’t Q1, but it wasn’t last either, so I was feeling pretty good heading into first-round eliminations. Because the Stock Eliminator class is made up of so many disparate engine and weight rankings, very few of the matchups would be heads up. Smith looked at my times, at the weather forecast for the afternoon, and at my first-round opponent on the ladder, the intimidatingly named Jim Powers. “I’m dialing you in honest,” he decided. It takes a while to match up 112 cars, so drivers parked in pairs and stood



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[Nothing compares to being in the staging lanes heading into eliminations for the first time. That's my opponent, Jim Powers, standing with me.]



[Anthony lifted the wheels every run in his 8-second supercharged CJ. That's next on the to-do list.]

around eyeing each other's partially written dial-ins and sniffing the wind for signs of changing weather. I shook hands with Jim Powers, and we smiled at each other as if each of us wouldn't love to see the other's car collapse in a *Blues Brothers*-esque pile of steaming parts right at the start line. When our turn came, I fired up the Mustang and made enough smoke to single-handedly win the World's Largest Burnout Competition. I watched Jim inch his red Camaro into the lights, and followed by bumping the 'Stang into place. The Christmas Tree seemed to take forever before the first yellow. I couldn't wait to race, and unfortunately, I didn't. All that adrenaline is heady stuff, and I left too soon, earning myself a -0.038 red light, and handing Jim the win. "You should have taken the allergy medicine after all," someone teased me that night, after I was done sulking. "Woulda slowed you down just enough." All the mockery was good-natured; I was not the first racer to go out on



[It's pretty impressive that you can buy a turnkey race car from the factory, put a rank amateur in it, and run repeated 10-second e.t.'s.]

a red that day, nor would I be the last. "I don't even get upset when I lose, I just assume I'm going to lose and if I win I'm pleasantly surprised," said a fellow first-round exit-maker as we watched the remaining racers play the stripe at the finish line that afternoon. I admired Eric Bar-dakoff's technique as he pedaled his 1968 Barracuda just enough to snag the win light from his opponent, and that's when I understood why racers like running the NHRA events. This was no local grudge night or fun run race at a brand-specific car show. There were no newbies, no easy marks, no lucky draws. These were people who called an 0.68 light "late" and my -0.038 "really red." They measured things in thousandths, and every move—from tech to qualifying—had to be perfect, or you'd be packed up in the trailer, watching someone else win. If you go all the way at this event, or even go rounds, you've really achieved something; if you don't, well, at least you've lost to the best. **NHR**



[The CJ was quicker than Jim's 11-second 1967 Camaro, but he took the win when I left early on the lights.]

FAST PHRASES: TERMS EVERY DRAG RACER SHOULD KNOW

Reaction Time: The time it takes to break the starting-line beams and start the e.t. clock after the green light. Racers tend to "leave" on the last yellow, to make up for human and mechanical reaction delays. Note: Reaction time has *no* effect on elapsed time.

Perfect Light: 0.000 reaction time.

Redlight: When the driver breaks the beam before the green light.

Bracket Race: When unequal performance cars are paired using a "handicapped start" system based on dial-in.

Dial: The projected e.t. entered in the timing computer to arrange a head start, written on windshield. In Stock Eliminator competitors have a maximum Class index time, but may dial quicker. When the same Class cars race each other, the race is heads-up with no breakout.

Breakout: Going quicker than the written dial.

Stripe: The finish line.

Weight Break: NHRA Sportsman classes are arranged by factory horsepower and vehicle shipping weight.

Two Step: Ignition control that allows a driver to hold the throttle wide open while the desired engine rpm is held at a set spot.

Line Lock: Brake controller that holds pressure on the front brakes while allowing the rears to spin during the burnout.

Burnout: Spinning the tires in place to clean them, make the rubber sticky, and improve traction.

Ladder: The pairing of cars based on qualifying position.

Qualifying: Stock and Super Stock racers qualify based on how far they can run under their respective indexes, without going too far under and getting a weight penalty.

Class Racing: General term for Stock and Super Stock racing, two of the oldest classes of drag racing. Learn more about Stock and Super Stock at ClassRacer.com.

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POWER TOUR 2015

Cheap Fuel, an Open Road, and Burnouts Made This a **Record-Smashing Year!**

✍️ HOT ROD Staff 📷 Wes Allison, Larry Chen, and HOT ROD Staff

► There's no other car event on Earth quite like HOT ROD's Power Tour®. Now in its 21st running, the world's largest traveling car show continues to grow and break records. 2015 saw more than 6,000 cars and 116,000 participants take in the sights, sounds, and burnt-rubber smells emanating from the myriad dragstrips, stadiums, and casinos at each stop along the way.

A little rain? Sure, but not the expected deluge predicted just days before the start in Madison, Wisconsin. A little heat? Yeah, the kind of temperatures that caused fuel to boil in *Street Rodder* magazine's 1940 Ford coupe as it blitzed from Champaign, Illinois, to Gateway Raceway just across the Mississippi River from

St. Louis. But a completely uneventful Power Tour® is dull.

Did we break the Guinness World Record for largest simultaneous burnout in Memphis? We don't have the official confirmation from Guinness yet, but those pesky Australians are complaining and talking smack, so we must have done something right. And speaking of burnouts, Holley sponsored a little burnout contest of its own on the Gateway strip, much to the delight of both spectators and participants. The Mothers autocross was packed all day at the Madison Fairgrounds. We may have to expand and extend it from the long lines and smiling faces noted by the HOT ROD staff.



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HOT ROD POWER TOUR 2015

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Then there was the Comp Cams night on Beale Street in Memphis, where the road was closed to better show off the 100 handpicked hot rods glistening under the neon lights and smiles of the Power Tour® contingent as they hopped from restaurants to blues clubs. It was like a local cruise night on steroids, or maybe nitro, with 10,000 or so of your favorite hot rod friends.

After doing more than 20 of these Power Tours, 2015 just seemed to come together better, with improved traffic flow, more vendors selling cool stuff, and more to do with your car, friends, and family. We'll let the stories and pictures over the next 26 pages help to fill in what many multi-year participants and Long Haulers alike told us was one of the best years for the HOT ROD Power Tour®. We hope to see you next year.



[Our “truck trio” waiting just across the street for the Gulfport, Mississippi, Lamar Dixon Expo Center to open its doors to eager Power Tour® participants and the curious.]



[The crowded vendors area at the first day's Power Tour® launch at the Alliant Energy Center in Madison, Wisconsin, that saw record cars and record attendance.]





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HOT ROD Camaro

Saving your money for a 2016 Chevy Camaro, but not sure if you can build it into the car of your dreams in time for Power Tour® 2016? No worries, Todd Wenzel Chevrolet in Hudsonville, Michigan, has got you covered. It offers a HOT ROD edition Camaro with three stages of performance upgrades, and even an optional 7.0L LS7 swap. This year on Power Tour® it rolled out a ZL1-based HOT ROD Camaro (*right*) for those looking to hunt Hellcats.



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Want a HOT ROD Camaro for your garage? Call or text Todd Wenzel Chevrolet's Dennis Barker on his cell phone at 616.204.6066.

Power Tour 2015 Autocross Action from Madison, WI

Participants who wanted to kick off Power Tour® with some racing had plenty of opportunity in Madison, Wisconsin, and those who got to the venue early could hot-lap the autocross course and make several passes. We particularly liked seeing the vintage hot rods and muscle cars on track, but there were plenty of late-model drivers setting some impressive times on the technical course. HOT ROD hot shoe Kevin Wesley ran a lap in 23 seconds flat in the 2015 Camaro SS 1LE the HOT ROD staff drove on the Power Tour®. Anyone got a timeslip that beat that?



[Freiburger, Finnegan, and the HOT ROD Garage crew spent most of their time prepping for Power Tour® swapping in the MSD Atomic EFI system and the LS7. The suspension was deemed less critical than having the proper side pipes.



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The F-5 Electric Cooling Fan Control System - Catalog Page 78

Looking for a solution to control your electric cooling fans that will monitor more than just coolant temperature? The **F5 Fan Controller** is your answer. This solid-state pulse-width modulated controller has the ability to control your cooling fan speed from 50% all the way to 100% fan speed based on user programmable settings. Kit includes controller, labeled vehicle integration harness, buttons, switches, 70 amp fuse, and compatible Delphi coolant temperature sensor.

30140 - F5 Dual Fan Controller

F5 Dual Fan Control for Two 35 Amp Electric Fans

30141 - F5 Single Fan Controller

F5 Single Fan Control for One 70 Amp Electric Fan



Torque Converter Lockup Controller - Page 70



60109 - Converter Lockup Kit For 700R4 GM Transmissions

60110 - Converter Lockup Kit For 200-4R GM Transmissions

Controls the lock up function of the torque convertor without the need of a VSS or any interaction with an ECM. Vacuum controlled switch and a 4th gear pressure switch supplied with this kit controls the torque converter lock up solenoid.



Electric Water Pump Relay Kit - Page 77

Switching high amp electrical devices with common switches can reduce the performance and cause damage. This relay kit provides maximum battery voltage to assure cooling efficiency and it protects your main electrical system from damaging amperage overloads.

50106 - Water Pump Relay Kit



Direct Fit Chassis Harnesses For Chevy Camaros - Catalog Pages 18-21



20202 - 26 Circuit, Direct fit 1969 Camaro Harness

20112 - 26 Circuit, Direct fit 1970-73 Camaro Harness

20113 - 26 Circuit, Direct fit 1974-77 Camaro Harness

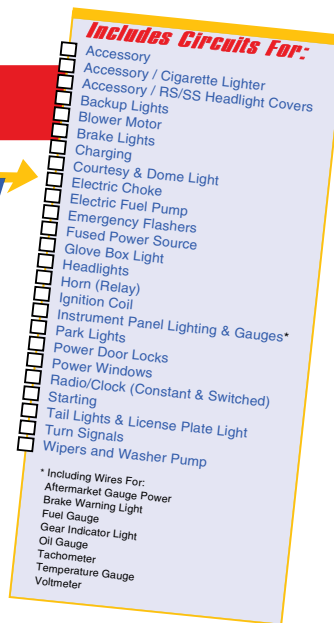
20114 - 26 Circuit, Direct fit 1978-81 Camaro Harness



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Madison, WI, to Champaign, IL

Oh, how it rained. The early birds didn't get a worm on the first drive of Power Tour® 2015, but they did manage to stay ahead of a thunderstorm and a few tornados. Topless late haulers questioned their decisions to bring roadsters, and a few folks had some minor get-offs due to the storm, although as far as we know, nothing too damaging.

Folks who had time for a quick break on the first route might have found themselves at the Volo Auto Museum (VoloCars.com)—"1/4-mile down the road" off U.S. 12 in Volo, Illinois. We like auto museums and we like our distances measured by the quarter-mile, so we pulled off and spent a delightful hour marveling at the vast collection that the Grams family has amassed. There are hundreds of muscle cars, recreations of famous movie cars, a whole room of Duesenbergs, and just a general overload of piston-powered enjoyment.



Fashion-model Emily Williams Reeves and race-car driver Ryan Eversley both have crazy job descriptions. Ask either of them what they do for a living and you'll get the same sort of coy, humble answer that suggests even they can't believe the words coming from their mouths. That's one of the reasons they're both so cool. That, and the fact they're both legit gearheads who came on Power Tour® 2015.

Power Tour® has that effect. It brings cool people together. Cars are our common ground, and Power Tour® is the ultimate icebreaker.

THE MECHANIC-MODEL

We met with Emily Williams Reeves on Day 2 to do some tire testing of Continental Tire's new Extreme Contact DWS06 all-season, high-performance tires on her 525hp 2005 Pontiac GTO. Emily's a serious

car girl and has owned the car since it was new. In fact, she just built a 408ci iron-block LS stroker motor for it using parts from Comp Cams and FAST. You can see more of Emily's build by following her on Instagram (@imemilywilliams) or by subscribing to her YouTube page (search: "Emily Williams GTO"). It's a perfect testbed for a set of all-weather tires on a late-model GTO headed into an Illinois thunderstorm.

THE RACER-HITCHHIKER

Ryan Eversley is a full-time factory driver for Acura in its all-wheel-drive #43 TLX-GT car (RealTimeRL.com/) in the Pirelli World Challenge. He's also a super-likable guy and a prolific poster with a loyal following on Twitter (@RyanEversley) and Periscope. He publishes a ton on social media, is a great source for breaking motorsports news, and tips on how to drive.

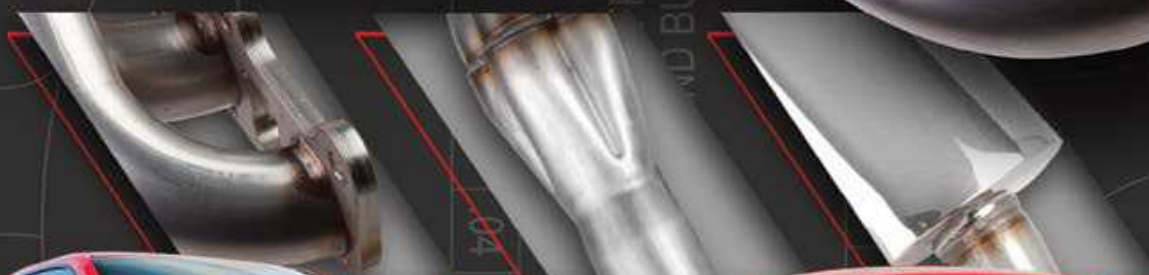
SEE THE VIDEO

We asked Ryan and Emily to tag along with us for the drive from Madison, Wisconsin, to Champaign, Illinois, on Day 2—and we all became fast friends. See them do burnouts in Emily's GTO by Googling: "Supermodel Race Car Driver GTO Power Tour® 2015."



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Shop Tours On the Route

In addition to the planned stops on the official route, we managed to stop by some of the garages where the coolest cars are being

HEIDTS // LAKE ZURICH, IL



alongside hand-fabricators and TIG-welders to build crossmembers

Heidts gave Power Tour® participants an opportunity to see some very cool engineering tools in its product-development shop. Moving through its manufacturing area, you passed a forest of Bridgeport mills on your way through the shop area, where CNC plasma-cutters work

built, even if it meant a bit of a detour. Here are four shops that were definitely worth a peek.

and suspension systems. At the rear of the building, we found the research and development garage, where Heidts was working on third-generation F-body components, including a bolt-in independent rear suspension that uses either a cast-aluminum or welded-steel centersection that accepts a Ford 9-inch ring-and-pinion assembly.



RAD RODS BY TROY // MANTENO, IL



of the company's past and current projects.

The beautiful Streamliner we first drooled over at the 2014 SEMA Show was in the shop with most of the body removed, which allowed us to see even more of the work that went into the car. It's powered by a naturally aspirated, 372ci Chevy small-block and is

Although we are all familiar with the shop's work, most of the HOT ROD staff had never set foot into Troy Trepanier's Rad Rods by Troy shop in Manteno, Illinois. Lawrence Laughlin, Rad Rides by Troy's EFI and CNC wizard, was burning the midnight oil and welcomed us in to show off some

surrounded by the same 1½-inch chrome-moly tubing that makes up the rollcage.

Built to compete in Drag Week™, this 1966 Plymouth Belvedere has some amazing bodywork and a deep blue metallic paint that is nothing short of gorgeous. Underneath the beautiful skin is an all-aluminum Hemi with twin remote-mount turbos that draw air in through the trunk. The cold side turbo plumbing runs through the rockers before entering the wheelwells. An intercooler will be mounted in the traditional up front position.



V8 SPEED AND RESTO // RED BUD, IL



muscle cars and trucks. There's a giant paint booth, several lifts, and a body shop. Kevin says the only thing they don't do in-house is interiors. On the day we visited, there was plenty to look at, from a

The route went right by Kevin Oeste's Red Bud, Illinois-based hot rod shop, V8 Speed and Resto, where he and his crew do everything from refreshes on older restorations to full frame-up builds. The shop looks small from outside, but just keeps going with room after room of interesting

1965 Impala sporting a 6.0L LS motor semi-disguised as a traditional small-block to an 11-second Mercury Comet (Paxton blow-through on a 302 in that one). In another room, we saw a real Olds 442 modernized with a 556hp LSA engine, Hotchkis suspension, and Wilwood brakes. Behind that was a 1969 Ford F100 on a 2002 Lightning chassis and driveline that, if not for the wheels, would certainly win sleeper of the year.



HOT ROD HEAVEN // PICAYUNE, MS



just a few blocks off the route. When Hurricane Katrina knocked

The bayou town of Picayune, Mississippi, has a population of 10,813—fairly large by Power Tour® standards, but not the place you'd expect to find a numbers-matching Superbird being restored right next to a 1970 GTO Judge. You'll find those cars and more at Sonny Nuccio's shop

out most of his award-winning stable and scattered the remaining owners across the country as they fled to drier pastures, he almost gave up, moving to Florida with his family pursuing non-automotive careers. It didn't suit him, and he missed the superior seafood near Gulfport, so he headed back to Picayune and started up the shop again with help from his sons, William and Charles. "We do everything here," he told us. "From full restorations, like on the Superbird where we are replacing almost all the metal aside from the firewall and the roof, to general repair to engine swaps. For example, we're putting a 392 Hemi in a Fox-body Mustang."

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10 Best Places to Eat



Old Fashioned, Madison, WI: Well-known for its cocktails, we came for the food—which is equally good. When we ordered the “sausage platter” as an appetizer, our server politely asked us to be more specific—as in, there was more than one to choose from. (TheOldFashioned.com)

Wonder Bar, Madison, WI: Established in 1929, it owes its existence to the Prohibition-Era Chicago Mafia. It serves the Wisconsin-signature Old Fashioned made with brandy rather than whiskey. The entire HOT ROD staff went full carnivore and agreed that the bone-in filet special is the way to go. (WonderBarMadison.com)

Krekel's Custard & Hamburgers, Pawnee, IL: We were introduced to the open-faced sandwich known as a horseshoe. It's made with a beef patty on a toast topped with French fries and cheese sauce. We were too stuffed to even consider the custard. (Krekels.Weebly.com)

Black Dog Smoke & Ale House, Urbana, IL: Seating is scarce, but after we had the barbecue chicken and pulled pork, we understand why. Try the fresh chips and smoky salsa or the BBQ sauce flight, which includes a taste of 10 BBQ flavors. (BlackDogSmoke.com)

4 Hands Brewing Co, St. Louis, MO: Go for the food and beer. The 20,000-square-foot brewery is visible from the dining room. We enjoyed a veggie chorizo burrito along with pretzel bites. (4HandsBrewery.com)



Broussard's Cajun Cuisine, Cape Girardeau, MS: A casual restaurant that fries up about every critter you could dig, trap, or catch in the river. The crawdad étouffée was even better than the fried alligator. (BroussardsCajunCuisine.com)

Weidmann's, Meridian, MS: It's been serving up great seafood and Southern-style comfort food since 1870. The blackened redfish was perfect. Try the fried green tomatoes if you've got a couple people to share with, but save room for dessert, as there are several pies made in-house. (Weidmanns1870.com)

The Shed Barbeque & Blues Joint Gulfport, MS: We recommend splitting the sampler platter that has just about every kind of slow-cooked meat on the menu. For sides, you can't go wrong with sweet potato casserole or mac and cheese. (TheShedBBQ.com)

Don's Seafood, Picayune, MS: The boiled crawdads are served by the pound with all of the appropriate accouterments, including sausage and corn. We were instructed on the proper eating technique, which involves breaking the mud bugs in half, sucking the salty vittles from the head, and peeling the tail to reveal the meat. It's gruesomely delicious.

Hen's Den Café, Mandeville, LA: When you walk into a place and ask the folks finishing up what they recommend, and to a man they all say, “shrimp po' boy,” that's what you get. It did not disappoint.



PIE IN EVERY STATE

For the last four years, the staff has tried to eat a slice of pie in every state the Power Tour passes through. We've failed every time. Our quest has become so well known that land-speed racer Steve Kanter brought us two apple pies in Gulfport, so at least Mississippi was covered.

FIVE TIPS FOR EATING ON THE ROAD

Try different things. You're sure to be somewhere you've never set foot, so ask what the local delicacy is, and then eat it.

Eat fast. Embrace fast-food chains, provided they're not the same ones you see every day in your neck of the woods. After all, we couldn't claim that In-N-Out is the superior burger without also trying White Castle, Krystal, Whataburger, Steak 'n Shake, Shake Shack, and Culver's. Seriously, try Culver's.

Gas-station buffet. This year's route seemed to take us through pork-rind alley, where there were more choices for fried pig parts than there were for potato chips. Still, we went with potato chips. We recommend Zapps.

Cash only. If the place only accepts cash, it must be good. In the age of plastic, any business that eschews credit and debit cards must be worth the small inconvenience of showing up ready to pay cash.

Order the pie. Do it for us.



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Dyno Domination!

Gary Ubert from Powerhouse Dyno in Clearbrook, Minnesota, has been on Power Tour® for several years now, hauling his portable dyno and strapping cars down to the roller to separate fact from fiction in the Sta-Bil HOT ROD Power Tour® Challenge. This year, a pride of Mopar Hellcats claimed six spots on the top-10 list, with Jimmy Schmitter's modified Hellcat putting down exactly 707 hp at the wheels to claim the number five spot, while other 'Cats saw from 630 to 685 rwhp to claim spots 6 through 10. The top five performers are listed to the right.

Gary Ubert told us that both Alex Graser and Cory Vaughn drove 13 hours to make it to Madison, Wisconsin, and Cory had just finished his Olds the night before. Alex's Supra uses a 3.0L Toyota 2JZ inline-six engine with a 76mm Precision turbo to deliver more than 35 psi of boost. A healthy shot of nitrous put the car over the 1,000hp threshold.



| OWNER | CAR | HORSEPOWER |
|--------------------|-----------------------------|------------|
| ALEX GRASER | 1997 Toyota Supra | 1,168 |
| CORY VAUGHN | 1984 Oldsmobile Cutlass 442 | 1,070 |
| TROY BRUMBALOW | 2011 Dodge Challenger | 757 |
| JIMMY SCHMITTINGER | 2015 Dodge Hellcat | 707 |
| TED SHULER | 2013 Chevy Camaro ZL1 | 698 |



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Drag-Racing Venues Times Two

Participants had opportunities to race at two quarter-mile tracks, Gateway Motorsports Park outside of St. Louis and at Memphis International Raceway. The price of admission was good for as many passes down the track as you'd like, provided you passed tech. Like the autocross, early birds got to make lots of passes with little wait time, but as the morning turned to afternoon, most participants seemed happy to make a couple passes and then head back to the heart of the venue to see what everyone else was driving around in.



[Mike Finnegan manned the Roadkill MSD Atomic van and managed a 13.5 in the humidity of Memphis with its 7.0L Lingenfelter engine.]



[This Hellcat lit the tires at every opportunity in the burnout box. We watched it run an 11.07 at 125 mph, despite the heat at Gateway.]



[After they participated in several Power Tours together, the father and daughter pair of Carey and Madelyn Deckard each brought a Chevelle on Power Tour® 2015 and made plenty of dragstrip passes. Madelyn's 1972 had been sitting for 15 years before they bought it and restored it over the past couple years. The 307 is gone and now it uses a 5.3L and six-speed auto swapped in from a wrecked Yukon. Carey admits she can get him on the lights, but her high-13-second passes aren't enough to keep up with the 7 pounds of Procharger boost thrown into the LS1 that Carey pulled from a 2002 Camaro and installed in his 1970 Malibu. The 640hp LS1 puts Carey in the 11s and it still manages 20 to 21 mpg with his 3.73 gears.]



[CJ and his wife, Anita, drove this custom creation from Toronto, where it made its first ever pass. CJ built it using Hudson doors and rear window, but the rest was custom formed from 14 sheets of steel to make a luxurious hot rod hauler like no other. It rides on a stretched heavy-duty Dodge Ram 2500 chassis and uses a common-rail 5.9L Cummins to power the 8,900-pound luxury cruiser.]

WHY POWER TOUR IS THE BEST SHAKEDOWN TEST EVER

For many of the cars on Power Tour®, the route marked the first or longest trip they'd ever taken. We heard from numerous participants who dropped engines in just days before the tour kicked off, and we also saw plenty of repairs happening both at the venue and roadside. Here are the top five reasons why Power Tour® is the ultimate shakedown test for your project car.

IT GIVES YOU A DEADLINE

This might be the most important, as a deadline lights a fire under you to actually get in the garage and turn some wrenches.

A CONTINENT'S WORTH OF CLIMATE

OEMs build all sorts of contraptions to test their vehicles in the heat. Power Tour® lets Mother Nature handle that, because you can't go 1,400 miles across America in June without some heat and humidity. The climate will nudge you on your way to fixing your car's cooling system and likely the air conditioning.

IT WILL HELP YOU FIND THE FLAWS

Highway expansion joints, railroad crossings, steel bridge surfaces—Power Tour® is practically a proving ground when it comes to road surfaces. Knowing your car's weaknesses can help you on your way to making it a more reliable driver.

AUTOCROSS, DYNO, AND DRAG RACING—NO ADDITIONAL CHARGE

Want to test your new wheel and tire package or the new go-fast parts you just added? Just get in line and make some laps, or put it on the dyno and get your number.

PLENTY OF HELPING HANDS

We know we said the deadline is important, but if you're going on a road trip in a freshly built or recently-made-roadworthy ride, isn't it nice to know that if some vital component does decide to part ways with the rest of your ride, there will be hundreds of fellow gearheads along with you willing to lend a hand?



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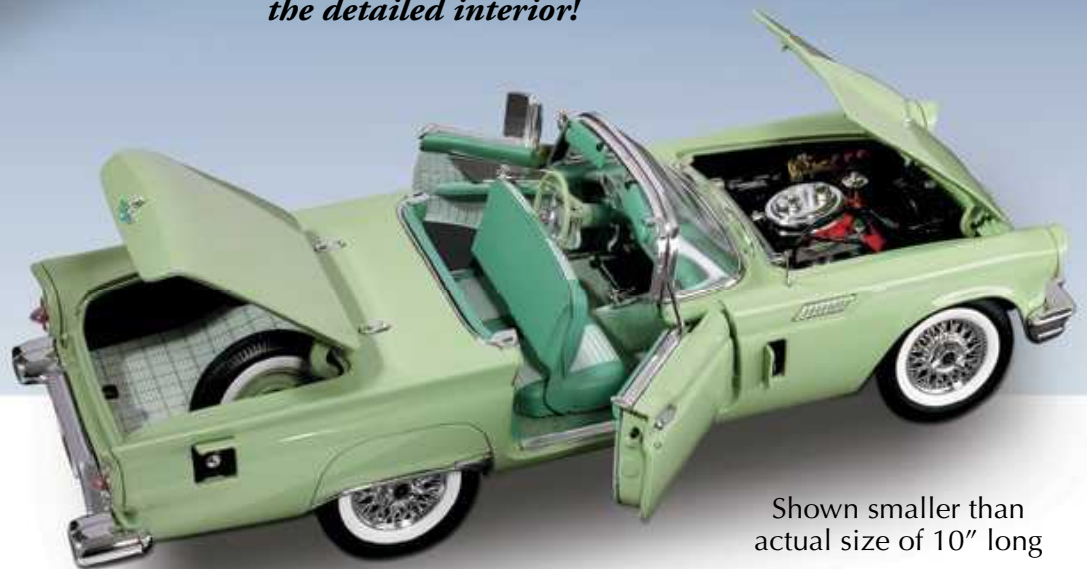
Introduced to compete with the Chevy Corvette, the Ford Thunderbird was Ford Motor Company's first auto to be marketed as a "personal luxury" car rather than a sporty two-seater. The daring strategy worked, and it outsold the Corvette from 1954 through the release of its most popular model in 1957.

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Standard of the World

A 1957 Cadillac Eldorado Biarritz isn't a common sight (roughly 1,800 were built), but Paul Bruno and Edgar Barron, owners of Cahaba Custom Cars in Birmingham, Alabama, brought one out for Power Tour®. The two built the Eldorado for Paul's father, who has owned the car for 10 years. Their restomod began about five years ago and proved to be a challenge, as the Eldo reportedly has more pieces of chrome than any GM car before—or since.

Luckily, nearly all of the trim was intact and the body was sound. The single missing piece was a chrome shield that's affixed to each seat. Paul shaped a new piece from aluminum, and unless he told you which one wasn't original, you'd never know.

The real difficulty with the car came in restoring the sabre wheels, which use aluminum centers and steel rims. Paul found a company that has the original tooling used to make the wheels, so they disassembled them, rechromed them, and put them back better than stock.

Everything we've mentioned so far has been restoration, but since this car was going to see the road, the guys decided it should have some modern performance and safety upgrades. The factory X-frame and suspension were stripped, painted, and rebuilt, and



[A rare sight at any show, the 1957 Cadillac Biarritz uses unique bodywork and trim from the doors back.



[The sloping decklid and fins are unique to the Biarritz. So are the split bumpers, which are cast aluminum and double as exhaust exits.



[While the exterior gives no hint that it's not a perfect restoration, opening the hood reveals a Be Cool radiator and a complete Chevrolet Performance Connect & Cruise LS3 and 4L65E powertrain.

the brakes were updated with C6 Corvette parts. A CPP aluminum master cylinder with integral proportioning valve replaced the factory master cylinder, which brings us to the engine compartment. A Chevrolet Performance Connect & Cruise LS3 and

4L65E powertrain were swapped in and the engine was given a custom cover. A Magna-flow exhaust system keeps things relatively quiet and fitting of the luxury cruiser, but QTP electric cutouts allow the V8 to scream like Harley Earl couldn't have imagined.

Champaign, IL, to Madison, IL

Confusing, right? Didn't we start in Madison? We did, but a different Madison! Silly America, so big we ran out of names and had to repeat. America is big, but Power Tour® makes it smaller, in a really good way. A month ago, how many of us could tell you where Carlinville, Illinois, is, and now, we could not only find it on a map but also know it has a very picturesque traffic circle. More than that, we can tell you which farmhouse has a big Caddy in the back field. Answer, a surprising amount of them.

Day 2's route was really excellent, with long straightaways through corn that wasn't quite knee-high yet, and curving sections dappled with tree-filtered sunshine. The towns were the best part, though: cobblestone streets, brick storefronts, and so many friendly, car-loving locals lining the route with their own sweet rides, and in some cases, whole families. It really makes you feel affectionate to your fellow Americans when they are cheering you on like you're an astronaut in a parade.

We talked to a bunch of great folks on the road, but our most surprising moment was when we heard a South African accent while admiring a bubbletop Impala. Then we saw a South African flag on the front. "Raise your hand if you are from South Africa," we demanded, and well, everybody in the parking lot did. They were shaking down the newly built Imp before shipping it back to South Africa at the end of the month.





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The show is Totally Free to 1989-earlier vehicles, however registration must be turned in by September 25th, 2015 or you will be subject to the \$10 fee!

This is a just for fun event! Judging is people's choice. Ballots due by 3:00pm and awards presented at 4:00pm; you must be present at award ceremony to receive your award. Please join us, cars will be allowed to leave immediately following awards presentation.

The show also incorporates an All-GM cruise to Cedar Key from NPD's main warehouse 900 S.W. 38th Ave, Ocala on Friday morning October 2nd. Participants are welcome to tour/browse NPD's extensive private car and truck collection starting at 8 A.M. before a short driver's meeting at 9:45 A.M., then the cruise departs. For more information, visit our website at www.npdlink.com

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PLEASE NOTE: If you're planning to attend the event, but will not be participating/registering, you may enter the park for \$8/vehicle (up to 8 passengers), \$5/single-occupant-vehicle, or \$2.00 walk-or-bicycle in.

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☐ "BIG CAR"

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Burnouts, Breakage, and Record Attempts

If nothing else, Power Tour® is about value. How else would you describe offering participants not one but two chances to create smoke billows from over-the-top burnouts to packed grandstands? The first burnout contest was at Gateway Motorsports Park, where Holley provided awards for the best single-car burnout based on spectator approval. *Roadkill's* Mike Finnegan hosted and half a dozen or so Power Tour® participants took their best shot, with Brian Thomson in his candy red Chevelle coming out on top.

There was also a bit of tragedy when Howard Boykin in his green Monte Carlo welded the spider gears in his 10-bolt half-

way into his smoky exhibition. With some help from the folks at Gateway, his friend, Johnny Watson, and a well-stocked local wrecking yard, the Monte was back on the Long Hauler trail later the next day.

At Memphis International Raceway, HOT ROD took the responsibility of defending America's sovereign right to the largest simultaneous burnout, as verified by Guinness World Records. The record has been skidding back and forth between Australia and the United States for the last few years, with all the smack talk and national pride you can imagine.

Without the bravado, Easter-egg-colored

smoke, and wrong-sided steering wheels, a group of 120 or so Power Tour® participants lined the strip, then proceeded to annihilate Australia's wimpy previous record of 100 cars, in spite of a false start and a couple of cars unaware there was actually a burnout contest going on around them. We are waiting for the official confirmation, but it would seem that Australia's previous record was upped by plenty—and done by participants who were sober and had all of their teeth. Let's face it, Americans were doing burnouts well before Australia had paved roads, so we'll always be able to take back what is rightfully ours.

[The burnout scene mid-burnout, showing the dense smoke but not the 120-plus cars participating to break the Guinness record for a simultaneous burnout. America will not be second fiddle to Australia's futile attempts to hold onto their weak burnout record!]



[At Gateway in St. Louis Holley sponsored more burnout mayhem with a contest to see who could lay down the best burnout. This A-body gets almost evaporated with the amount of rubber burned in the one-minute session.]





[Our intrepid *Roadkill* twins got in on the burnout action, laying down a decent amount of rubber at the suggestion of burnout throughout this year's Power Tour®. Here Finnegan shows contestants how it's done before taking over the contest announcing chores.



[When the contest was over, there wasn't much left to do but make little burnout-bits men, clean up, and have a beer.



[Sometimes things can get ugly and messy, as the remains of this contestant's rear truck radials will attest. A couple feet of tread was thrown at the timing tower and just missed hitting the tower windows—at Power Tour® you're never too far from the mayhem.



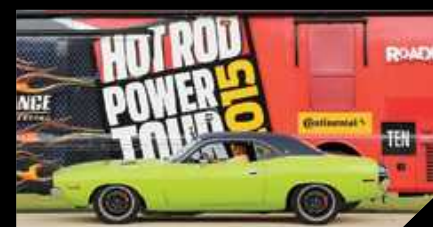
[Nothing about burnouts is pretty, whether you're talking about the sights or smells, and the aftermath pre-cleanup will attest to that.



[Six-ply tires are always a good thing to bring along, as four-plys can sometimes not be up to the tough punishment of a Power Tour® burnout contest.



[When you have more than one drive axle, you should probably spin them all just in case the rules say you should. As can be seen, some were up for a full-court, four-wheel burnout.





A Night on Beale Street

There's an energy and rhythm that hot rods and Tennessee blues blend together. The horsepower and driving groove merge into an atmosphere of cool with a soundtrack of class. So after the longest drive of the 2015 "Tour"—and the most cars anyone has ever assembled for a simultaneous burnout—man and machine met at Memphis' Beale Street for the Comp Cams cruise night to cool off with the perfect finish.

Comp Cams picked 100 cars from Power Tour's Day 4 stop—cars that were then invited with VIP parking passes to line Beale Street's sacred scene. The gathering crowd swelled the shutdown street from 6 p.m. to 10 p.m. The sounds of the day's high-compression engines and tire annihilation melted into a mix of guitar rifts, bench racing, and stories from the road.







Gas 'N Go

The very first car we saw at the beginning of Power Tour® was Ray and Karen Mohoff's copper SS Chevelle. The Mohoffs came down from Washington state for the week in their 1967 502-powered, gasser-style A-body, and it was turning heads on the road with its mix of old school and new cruiser. Why build a straight-axle Chevelle with a modern, fuel-injected big-block in it? "Everybody else does all the other stuff," Ray said.

The Mohoffs were traveling with Mike and Amy Hefley (in a 1966 Fairlane) and John Hughes (in a 2003 Mustang). The crew became friends during Power Tour® 2013 and have met up ever since to run together. They live in different states, have different kinds of cars, but like each other enough to want to road trip together each year. That's the best thing you get to do on this trip: meet people you'll like. They asked if they could send a carrier pigeon—via HOT ROD—to "Big" Steve Campbell, who is serving in the armed forces and couldn't get leave. Hi, Steve!

[Ray bought the 396 Chevelle and stripped it to a shell. After an unexpected quarter-panel replacement by X Collision and Restoration in Arlington, Washington, the straightened SS was painted in Copper Penny and Candy Tangerine.

"If one of us breaks down, we all stay back and work on the car," Karen told us. She and Ray did, in fact, keep everyone for several hours in Memphis replacing a fuel hose on the Chevelle, a job that sounds easy until you realize they had to drop a 22-gallon fuel tank—full of fuel—to get to the missing clamp. "We couldn't have done it without our friends' help."



[A Chevrolet Performance crate 502ci V8 powers the gasser and makes an interesting contrast of old and new with fuel injection and fender-wall headers.



© Wes Allison

["Power Tour® is all about the people you meet," the Mohoffs told us. They've been traveling with the same group since 2013.



[The frame, Art Morrison rear ladder bars, Speedway front axle, and rollcage were all done by Gage Enterprises, and Bob Ketchum covered all the metal with contrast-stitched upholstery and a custom dash.





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Along the way, the Hoonigans hooked up with Tommy Reynolds and John Kiraly, who were piloting a 1978 Firebird that had been nothing more than a lawn ornament a week previously. "We got it running Thursday and hit the road Friday," John told us.

Hoonigans Join Power Tour

While Ken Block, the king of the Hoonigans, was off in Europe making tire smoke, his marketing and design team of Brian Scotto, Jon Chase, and Ashley Baker took on Power Tour® in Brian's 1972 Nova and Jon's 1955 Chevy. You might think the gang behind YouTube blockbusters like *Gymkhana* would be immune from the mechanical demons that attack the rest of us, but the Hoon-story is one of broken parts and parking-lot repairs. Our kind of story.

First up, the Nova, which wasn't even finished when it was shipped from Los Angeles, expressed its dissatisfaction by snapping a clutch pivot ball. The pivot was repaired,

only to break again—this time on the side of the road near a sheriff station. The gang replaced the broken stud with a bolt, which had to be ground down on a curb in the parking lot.

"Lemme know when you need a tow," said a police officer before returning to the air-conditioned station. Silly man, does he not know who he's dealing with? The ground-down bolt worked beautifully and the Nova was back to *va*. At least until the belt started squeaking, and when Brian went to check under the hood, the alternator fell off. "The bracket broke, but we were near a heavy-machinery place, and they

welded it up for us."

The next day, Brian put another non-pavement-machined pivot ball in—and promptly broke it. They stopped at the same parking lot as another Power Tour® car, also being worked on. "We were putting our roughed-up bolt back in, parts everywhere, and we look over, and Cherielynn Westrich [from TV's *Overhaulin'*] is under the MSD car fixing the air conditioning. We should be so lucky as to have air conditioning!"

Somehow they still made it through the "Tour and made friends with every shaggy, rough-running, rusting, last-minute hot rod along the way. So forget numbers-matching. Forget bodywork. Forget wraps, paint, test-drives, and knowing where you're going. Just get a cool car, then scavenge what you need to make it run, fire it up, and hit the road.





[Brian Scotto's Napalm Nova's primer and sticker exterior hides a 454 big-block, Bowler T56 trans, Art Morrison rear subframe, MSD ignition and EFI, Watt's-linked Currie 9-inch, and a host of other goodies.



[So very *Two Lane Blacktop*, Jon Chase's 1955 Chevy is powered by a take-out, 327ci small-block. Almost every part on the car is a junkyard find or stolen from another backyard project car. "The water pump on this engine is a Corvette piece my dad bought when he was in high school. It's been on six or seven different cars over the years."



[To replace a clutch pivot ball that kept breaking, the guys had to grind down the hex on a bolt. With no power tools, they did it by scraping it on the concrete.

All Roads Lead to Power Tour



Smiths Sunbeam Bread wasn't open, either, but it did provide a great backdrop for Mike and Brandon Harliss' General Lee Charger, kept company by Ron and Corey Lamm's 1965 Impala, Joel McRaney's 1968 Camaro, and Thomas McCoy's 1969 Camaro. The Charger is a 440 car, and Mike took the past three years making it into a Duke Boys clone. Ron's had the Impala for two years, he built the 396 in his garage, and it was a 50th birthday present to himself to take it on Power Tour®. The Camaros are both good, old-fashioned, Holley-carbed small-blocks. Joel's is a four-speed, which he's had for 42 years. "Paid \$55 a month when I bought it," he said. Thomas probably paid a little more than that for his 1969 when he bought it in 2004.





Rat-Rat-'Cat

Sometimes one guy has a 1930 pickup body and a frame, and another guy has a small-block with a blower on it, and the guys are friends so it's just natural to put it all together. Then it makes sense to hang out with someone in a 1929 Ford two-door sedan, and since you're breaking all sorts of rules anyway, why not add in a brand-new Dodge Hellcat Challenger to the mix? Rat-Rat-'Cat. Johnny Halvorsen, Jeremy Reddell, and Troy Geasland were in the Fords, toughing out

the Power Tour® heat in surface-rusted bare metal with various bits bungee-corded on. They were rat rods, and we mean that in the best possible way. Mark Van Epps and Trevor Cooper acted as the follow car in the spiffy silver Hellcat Challenger, picking up any pieces that fell off the other two. “How’s that Hellcat?” we asked Trevor, who was riding shotgun, and he just got this dreamy look on his face that all Hellcat owners seem to get and didn’t answer.

You know what engine is in the Hellcat—707hp 6.2L Hemi—but the pickup was rocking a supercharger, too, although it’s probable that its 355ci Chevy and the 302 in

the sedan combined wouldn’t quite add up to the Hellcat’s horses. What does it matter? They were all traveling together, and they all made it to the finish, despite various leaks, rattles, and flat tires on the rods.

Don’t ask us which fellow is which in this group, even they just call each other, “Boy 1,” “Boy 2,” and so on. What we can tell you is that they had a great time, as Mark reported to us after the end of the Tour. “The boys felt like outsiders because of the style of cars we build, and I had to twist their arms to get them to go, but everyone was so kind and complimentary and now they have a whole new view on hot rodding.”

Madison, IL, to Memphis, TN

Dragstrip to dragstrip? What is this, Drag Week™? We left Gateway Motorsports Park and headed for Memphis International Raceway. Our drive took us past the famous St. Louis Gateway Arch, which we could see just peeking over the overpasses as we made our way down IL-3.

The towns in Illinois were straight out of a Norman Rockwell painting, and all the locals were lined up to greet Power Tour® as

it drove by. In Red Bud, we spied an Elvis impersonator, and in Chester, we got even more cartoony in the “birthplace” of Popeye. Apparently, the original Popeye cartoonist, Elzie Crisler Segar, was a Chester resident and there are statues, murals, and even a museum dedicated to the pugilistic sailor and his compatriots. The route was long, but we still made it to the racetrack in time to catch some drag racing and burnouts.





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Power Tour's Pit Crew

Great road trips require you get far enough away from home that the burdens of everyday life can't reach you. The only downside to the distance is your traditional safety net of friends and tools may also be out of reach. On Power Tour®, Chevrolet Performance steps in to solve that problem and supplements the 'Tour's convoy with an expertise you'll not find on any other cruise. We call that expertise the Chevrolet Performance Motor Medics.

The Motor Medics' mission is to keep Power Tour® participants running down the road. If you have a problem on the 'Tour and can get your car to them, they will fix it—for free, whether it be a Ford, GM, or Chrysler product. You just have to bring them the parts. The Motor Medics are capable of troubleshooting and fixing anything, and while we were with them on Day 6 of Power Tour® 2015, we saw the team diagnose and repair the aftermarket in-tank fuel pump wiring on an LS7-powered Chevy Colorado, a snapped alternator bracket/header bolt on a 1955 Chevy, a faulty temperature-sending unit on a 1957 Chevy, an axle seal and subframe connector on a 1969 Camaro, and a starter motor for a 1970 Chevelle.

SEE THE VIDEO

Google "Motor Medics Power Tour 2015."

THE DOCTORS ARE IN

The Motor Medics team includes two support trucks and a trailer full of tools. Six techs work to repair vehicles. Their backgrounds and capabilities vary, but they are all experienced in working on specialty and prototype vehicles—which, in many ways, are very similar to the way we build our hot rods. Let's take a closer look at the 2015 Motor Medics (from left to right):

01] MIKE COSTELLO

Day job: Lead Integration Engineer

Work history: With GM since 1981

Motor Medics role: Works as a service writer to triage all car problems

In his home garage: 1959 MGA

02] BUD PENNINGTON

Day job: Chevrolet Performance Technician

Work history: With GM since 1978

Motor Medics role: General repair

In his home garage: 1965 Plymouth, 1969 Charger 500 (Hemi), 1971 Corvette (LS6 454), 1969 Mercury Cougar Boss 302, Buick Skylark

03] TOM GARDNER

Day job: SEMA Program Vehicle Manager

Work history: With GM since 2002

Motor Medics role: General repair

In his home garage: 1957 Cadillac Coup DeVille, Buick Grand National

04] LARRY HEBERT

Day job: Chevrolet Performance Fabricator

Work history: With GM since 2005

Motor Medics role: General repair

In his home garage: 1970 'Cuda



05] BILL GRAHAM

Day job: Performance Motorsports Technician

Work history: Auto industry for 21 years

Motor Medics role: General repair, electrical expertise

In his home garage: Had a 1979 Malibu and did a frame-off with MerCruiser engine and TH700-R4 transmission

06] RICH DOWNING

Day job: Program Manager: Special Vehicles

Work history: With GM since 2011

Motor Medics role: General repair, composites
In his home garage: 1968 and 1969 Camaros, AMC Rambler, 1962 Olds F-85

07] CRAIG SHANTZ

Day job: Engineering Group Manager: Performance Vehicles & Motorsports

Work history: With GM since 1977

Motor Medics role: Develop and manage Chevrolet Performance Promotions Strategy and Specialty Vehicle Builds

In his home garage: He's had a 1954 Buick, 1965 Mustang, 1970 Road Runner, 1976 Dodge Dart, and two 1987 Buick Grand Nationals



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A Falcon From Down Under Gets a Second Chance at the Long Haul



The Ford Falcon name petered out in the U.S. in 1970, reduced to a trim level on the Fairlane/Torino. In Australia, it took a very different road—might we say, a Fury Road—becoming a completely unique Aussie-only muscle car and, eventually, the hero ride of the *Mad Max* franchise.

Grant Hodgson might not have had to duck flame throwers the first time he shipped his blown 1973 Ford Falcon XC out to run Power Tour® in 2004, but he didn't have an easy time of it all the same, as electronic issues stopped the Ford during the first leg of the "Tour." He left the Falcon in storage in the states, and flew home to Australia, where he's a custom car builder and road-train driver—that's those wild, multi-trailer semi setups they drive down there when they aren't busy showing us up in burnout ability.

It took almost 10 years, but in February 2015, Grant pulled the Falcon out of hibernation and "had a look at it." Apparently, that look was enough to inspire him to action, and two weeks before Power Tour®, he swapped cylinder heads, rewired the electronics, and had it on the dyno at Finish Line Performance in Chicago the day before the Power Tour® kick-off. Then he and buddy Colin Gobby drove it all 1,500 miles to Louisiana. As if that weren't enough, they then went on to the Street Machine Nats in De Quoin, Illinois, where the Falcon claimed a staff pick award. We can see why!



[The Falcon is an XA model converted to XC bodywork and interior, because Grant liked the looks of the 1976–1978 XCs. The *Mad Max* styling is really just in the Scott injector hat, rising above the 6-71 blower on top of the 351 Cleveland, which is backed by a Ford Toploader four-speed. "We got asked a lot about doing a real blown *Mad Max* engine, so I designed this system, and it's the only one I've built," Grant told us.]



[We spent several minutes talking to Grant's co-driver on the left side of the car before realizing that the Falcon was right-hand drive.]

Memphis, TN, to Hoover, AL

The cruise out of Memphis might have been a little slower than usual, as many participants had a late night on Beale Street, but once we got going, the route was full of photogenic stopping points and plenty of interesting cars. Bill Elder's 1968 Barracuda, in particular, caught our eye because of the child's seat in the rear. Bill is traveling with his son, David, and grandson, Cooper. The Plymouth has a Formula S suspension, widened rearend out of a Volare, 17-inch wheels, disc brakes, and under the hood? A Slant Six. It's one of six Barracudas that Bill owns.

After a quick stop to wash our Chevy Performance Suburban, we got back on the road to Hoover, Alabama. At the Hoover stop we caught up with retired Viper engineer Herb Helbig, who was cracking himself up this year with his faux-Bonneville Prowler. "I tell people the vents cool the brakes or act as ram air. It's all just plastic. We did it the night before we left as a joke." What's not a joke is that Herb could, and has, totally set records out on the salt for real, so we'll let him have his joke.

If Herb is a seasoned expert at driving, Keegan Wentworth is just starting out. She and her pop have been wheeling her 2010 Mustang through the route, and after we went for a drive with her, we have to say she's way better at driving than we were at 15—and possibly now.

Our last photo shoot of the day was with photographer Larry Chen. We grabbed Kaleb Kelley's 1973 Plymouth Scamp, a clean, little, white A-body that had been catching our eye all week. The interior is brilliant blue, a color combo that always makes us think of swimming pools. So restful. Kaleb has a 340 in the car with a Holley EFI backed by a 727 and an 8¾ rear. Beefy parts! A Hotchkis Total Vehicle System (TVS) updated the suspension, Boze forged wheels wrapped in Falcon rubber stick the Valiant to the ground, and it's a mean, little machine when you see it going down the road.



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The screenshot shows the Hot Rod Network website. At the top is a navigation bar with logos for HOT ROD, ROADKILL, CBB, HOT RODDER, Classic TRUCKS, CIRCLE TRACK, MOPAR, ENGINE MASTERS, and MUSCLECAR. Below this is the 'HOT ROD NETWORK' logo, social media links (FOLLOW: Facebook, Twitter, YouTube), a LOGIN / SIGNUP button, and a SUBSCRIBE TO A MAGAZINE button. A search bar with the placeholder 'Type your search here...' is on the right. Below the navigation bar is a menu with links: CARS, HOW TO, FEATURES, VIDEOS, EVENTS, and SUBSCRIBE. The main content area is titled 'FEATURED CARS' and features a large image of a 1933 Continental Coupe. Below the image is the title '1933 Continental Coupe - Continental Divide' and a short description. To the right of the featured car is a sidebar titled 'HOT ROD TYPES' with a list of categories: Hot Rods, Hot Rod Trucks, Kit Cars, Custom Cars, Performance Late Model Cars, Pro Street, Pro Touring, Race Cars, Rat Rods, Cruisers, Street Rods, and Street Legal Drag Cars. Below the featured car is a section for 'LATEST ARTICLES' with a 'Refine by:' dropdown menu. It lists two articles: 'This Rare 1971 Ford Mustang 429 CJ Ram Air Convertible was Found by the Side of a Road.' and 'The Playmate's 1968 Ford Mustang G.T. 500KR Convertible'. At the bottom right of the website screenshot is a red button that says 'CLICK HERE FOR A 30 DAY TEST DRIVE!'.

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Nova 2.0

Chevrolet Performance debuted its 1967 Nova 2.0 at Power Tour®. Packed with a 272hp, 295-lb-ft of torque Ecotec LTG turbocharged crate engine and six-speed transmission, the car's specs read like many

[In parking lots, the engine feels torquey—like something you'd expect in a tractor. As it builds 20 psi of boost, the turbo changes the engine's personality and the surge of power feels V8-like, just smoother. Sort of European, really.]

hot rods. However, this thing is a 2.0L four-banger—but don't let that scare you off.

Like you, we typically think of Larry Larson's Drag Week™-winning big-block Chevy II when we see these cars. But we had

to check out the Nova 2.0 to see what the world of turbocharged, direct-injection crate engines promises, so we convinced Chevy to give us the keys for a 200-mile stint over rain-soaked rural country roads.



[Chevrolet Performance offers this turbo crate engine (PN 19328837, street price \$7,600 plus ECU, which is another \$2,000) that can be longitudinally mounted for rear-wheel-drive cars. Its aluminum block and DOHC head package features direct injection, a forged-steel crank, and a quick-spooling turbo. It's basically the base engine for the 2016 Camaro.]



[The car features air suspension, a manual transmission, 12-bolt rear axle, and the fit-and-finish that only comes from being built at GM's Milford Proving Grounds.]

SEE THE VIDEO

Watch the world debut of the car, and come for a ride with us in the Nova 2.0 by Google searching "Nova 2.0 HOT ROD."

Hoover, AL, to Gulfport, MS

From the very start of our trip, there were winding, tree-lined backdrops and plenty of gas stations chock-full of cool cars and people with interesting stories.

At our first gas stop, we hooked up with a whole crew from Louisiana and played hopscotch with them for the rest of the route. This was the gang's first Power Tour® and they were having a good time. How could you have a bad time in a flamed 1953 Bel Air like Joe Doran's or a 1962 Chrysler 300? If those two vehicles are a little too new for

you, maybe you'll like Tommy Burns' 1939 Chevy. We certainly did.

The scenery started getting swampy, which was exciting, and we started getting hungry. We stopped when we saw a sign that said "restaurant," but it didn't appear they'd been open in quite a while. If only we'd been smart like Joe and Reece, who brought sandwich fixins and were enjoying lunch on the decklid of their Mustang. Smart boys.

There was quite a backup getting into Centennial Plaza in Gulfport, but at least

everyone could look at the ocean while they waited. Like many of the areas we drove through on the 2015 Power Tour®, Hurricane Katrina caused unbelievable damage to the site in 2005, yet many of the Spanish Colonial buildings in the Plaza survived. It is now a state landmark and undergoing renovations. So besides providing shade and a unique setting for our stop, Gulfport attendees soaked up a little bit of American history during the second to last show of Power Tour® 2015.



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Keys to the City



[Mayor Dr. Ed Pinero presented HOT ROD General Manager Jeff Dahlin with a proclamation from the City of Picayune, Mississippi.]

Towns welcomed Power Tour® everywhere we went. The city of Picayune, Mississippi, rolled out the red carpet for HOT ROD, with Mayor Dr. Ed Pinero presenting HOT ROD General Manager Jeff Dahlin with a proclamation from the city commending Power Tour®. We asked Dahlin about his time in Picayune.

"I rolled into Picayune not knowing what to expect, but I was immediately heartened to see a lineup of barely street-legal drag cars lined up in front of

Hot Rod Heaven. Mayor Pinero greeted me warmly, and then I met the Tritt Race Team and took a look at their badass Nova. I was placed in the passenger harness of a monster second-generation Camaro and treated to repeated burnouts along the city's main drag, despite the fact that these streets were not closed off! I asked the driver of the Camaro about it, and he smiled and informed me he was, in fact, an officer of the Picayune police force. Never before have I felt so—above the law!"

Miss HOT ROD



Kristian Mill, Miss HOT ROD 2015, participated in her first Power Tour®, driving her 1935 Ford pickup the whole way. After seeing her at every venue, we spoke to her after Power Tour® was all wrapped up.

HR] How did you get involved with HOT ROD and Power Tour®?

KM] I've been around the industry my whole life and have been a longtime subscriber of the magazine. Although I am a chef by trade, I'm not afraid to put down the knives and pick up a wrench. So I sent in a bio and some pictures of my Ford pickup. Six months later and I have my first Power Tour® under my belt.

HR] What's your history with your truck?

KM] I'm one of seven kids and the only one who was into cars as much as my dad. So it was our special

project. It took forever to finish, but it was those years where I learned most about classic cars and hot rodding. We've had many other vehicles come and go over the years, but my '35 is the truck my kids will learn how to drive in.

HR] What was it like meeting participants along the way?

KM] That is where the heart of the tour is at: the people. It is a rarity to get that many like-minded people all on the same passion-driven expedition at once. Everyone is friendly as well and most would make a point to come say hi at every stop.

Think You've Got a Cool Engine-Test Stand? Swing By the Stennis Space Center, Where They Test Rockets



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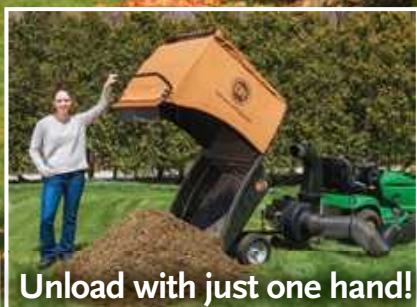
The route this year took us within 20 miles of one of the coolest engine-run stands in the world. As we headed west through Picayune, Mississippi, we passed right by the John C. Stennis Space Center, NASA's largest rocket test facility. In 1966, Stennis—then called the Mississippi Test Facility—test-fired Saturn V rockets in prepa-

ration for launching us to the moon. By 1992, the center had run more than 2,000 rocket test runs. That's a lot of fire and fury, folks. Numerous space missions, including Endeavor and Atlantis made their way to the heavens, thanks to research done at Stennis, and the facility is still doing critical studies today, figuring out ways of efficiently launching

satellites, monitoring the environment, and getting supplies to the International Space Station. You can learn about high-tech hot rodding by visiting the Infinity Science Center, which offers tours of Stennis, and interactive NASA exhibits. Find out more at NASA.gov/centers/stennis.



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Roadkill's Mike Finnegan brought his 1955 Chevy Bel Air, aka Blasphemi, on Power Tour® and inadvertently discovered the car can do 55-mph rolling burnouts. When we asked Finnegan about it, he practically pleaded the Fifth Amendment, saying only, "If it was possible, this is how I would go about it: Once up to cruising speed, I'd push the clutch in slightly and then do the

same with the accelerator stick—Blasphemi has never had a complete pedal assembly, which sucks if you're wearing flip-flops. At the exact moment the Hemi achieves 6,000 rpm, dump the clutch and hold on for dear life! The everlasting, no-hooking Firestone Cheater Slicks are also a good addition to any car allegedly used for this sort of thing." That sounds like a confession to us.



Gulfport, MS, to Gonzales, LA

It's a hard thing to leave the beach, but it helps when you're heading to Louisiana, home to some of the greatest food in America and the final party of Power Tour® 2015. We waved farewell to beautiful Gulfport, and set out across the Bay of St. Louis, heading toward Baton Rouge. As always, we were accompanied by a gorgeous array of muscle cars and hot rods.

At our first gas stop, we noticed Chris Ratliff sitting next to his 1968 Dodge Charger. "How're you doing?" we asked. "I'm sitting in a parking lot making a sandwich in my Charger," he answered. "I'm great." Add that one to your bucket list, kids. Make a sandwich in a Dodge Charger. Then make it happen.

When we stopped for lunch, we ran into Carrie and Andi Watson, traveling in a 1965 Oldsmobile with Carrie's mom, Linda Pugh. Carrie is a HOT ROD regular, having run Drag Week™ numerous times and narrowly missing out of grabbing the "Fastest Olds" title for the second time running in 2014. This year for sure, Carrie. We discussed pink cars with Andi, who mentioned having seen at least two, but preferring her mom's sea green Olds the color it is.

Our notes get blurry after this because it started raining, but we still managed to snag shots of John and Violet Nilson's 1970 Maverick surrounded by Spanish moss, and to wave to Rob and Sophie Bower, who got engaged during Power Tour® 2013 and were enjoying married life and car life on the 'Tour with a gang of friends, which included a 1967 Camaro, a 1953 Chevy, a Trans Am, a ZL1, a Mustang, and, well, you get the idea. Car people. Power Tour®.

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RACE DAY

Monday, 9/14

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- Gates open 7:30 am /Racing until 1:30 pm or until complete
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RACE DAY

Tuesday, 9/15

Lucas Oil Raceway

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- Gates open 7:30 am /Racing until 1:30 pm or until complete
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Wednesday, 9/16

Great Lakes Dragaway

Union Grove, WI

- Gates open 7:30 am /Racing until 1:30 pm or until complete
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RACE DAY

Thursday, 9/17

Cordova International Raceway

Cordova, IL

- Gates open 7:30 am /Racing until 1:30 pm or until complete
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FINALS

Friday, 9/18

Gateway Motorsports Park

Madison, IL

- Gates open 11:00 am /Racing from 2:30 pm to 8:30 pm or until complete
- Tickets: \$15 for 13 and above/Children 12 and under free

HEADS-UP!

Saturday, 9/19

Gateway Motorsports Park

Madison, IL

- Gates open 9:00 am /Racing from 11:00 am to 3:30 pm or until complete
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Power Tour 2015 Long Haul Gang






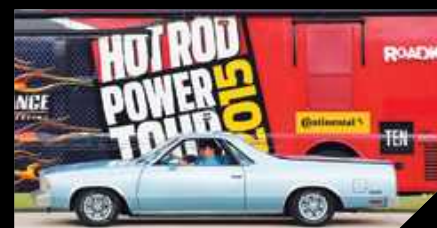
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The Long Haul Gang is all about dedication to the open road. Of the 6,095 cars that participated in the 2015 HOT ROD Power Tour®—2,120 of them were Long Haulers. The Long Haulers are the cars and people that joined us at the Alliant Energy Center in Madison, Wisconsin, and crisscrossed the Mississippi River to end up 1,500 miles and eight states away at the Lamar Dixon Expo Center outside of Baton Rouge, Louisiana. We are honored by their dedication, enthusiasm, and stories. Thanks for joining us for the whole ride.

Not a Long Hauler this year and looking to join this group next year? Or were you there and miss your fellow Long Haulers already? The "Tour never ends at HOTROD.com. Log on for all of the photos and video from this year's event—plus upcoming info on the 2016 Power Tour®. See you there! 



Step by Step: Sand-Casting Aluminum

© Thom Taylor



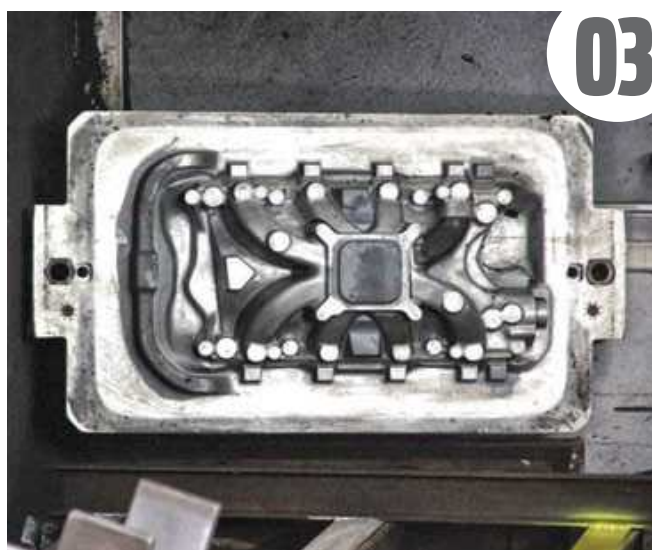
01

01 With most casting today, the process starts at the computer. The part is broken down to determine how many molds and cores (the internal cavities of the part) will be needed, including vents for expansion, runners to help carry the molten aluminum, as well as formulas to determine material shrinkage.



02

02 Aluminum ingots of different grades are waiting on pallets to become everything from an elaborate air valve for trains to Hemi heads and Chevy small-blocks.



03

03 Patterns are created for each section of the mold. From these patterns the actual sand molds will be made, one mold per part. Within these patterns are the paths for metal flow called runners or sprues, vents for metal expansion as it cools, and supports for any cores needed to create cavities or passages in the finished part.



05

04 A mold box is made for the combined sections of the mold. Sand is poured into and compressed inside of the box creating the contained mold.

05 Molten aluminum is heated to the consistency of water so it can be poured without creating turbulence that might trap air pockets and result in porosity in the finished part. Temperatures also affect conditions where oxides form from saturated gases, how material leeches into the surface of the mold, and interference from areas solidifying at different times.



06

06 The furnaces keep the aluminum molten as new ingots are introduced. The molds travel by conveyor into the furnace and then the metal is poured. The mold is then slid down a conveyor, while the next mold is inserted, and the process repeats.



07

07 Once out of the furnace, the mold is removed from the box and allowed to cool. Once cooled, all of the sand will be chipped away, revealing the raw part.



08

08 These are raw castings with sprues and runners attached after removal from the molding box. You can see black sand from the mold clinging to the surface of the parts.



04

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Sand-Casting Aluminum, Cont'd



09

09 After the parts go through a rough cleaning, the sprues, vents, runners, and casting flash are cut, sanded, or filed off.

10 In the age of robots and automation, there is still a lot of handwork needed with the sand-cast method. Workers file and grind off flash and remnants of any vents or risers to end up with a finished casting that can be sent to a separate section of the Buddy Bar Casting facility for machining and drilling.



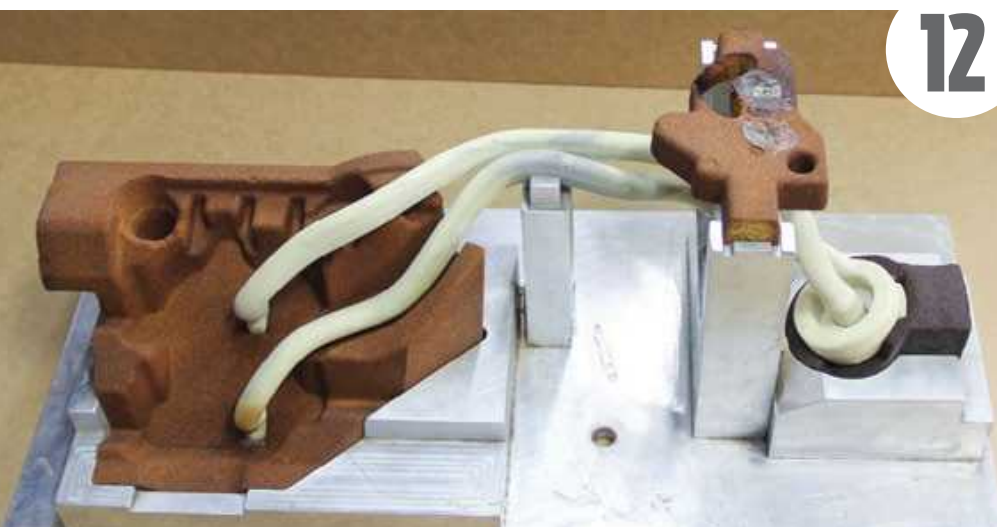
10

11 Inspection is the next step. These oil-filter relocators for 2015 Mustang right-hand-drive cars have been inspected and rejected for various flaws and will not be moving on to the machining and drilling process. They will be melted down and the aluminum reused.



11

12 Going back a couple of steps, this is the core setup for the Mustang filter relocators. Compare this to the previous image to get an idea of how the cavities inside of the part are configured.

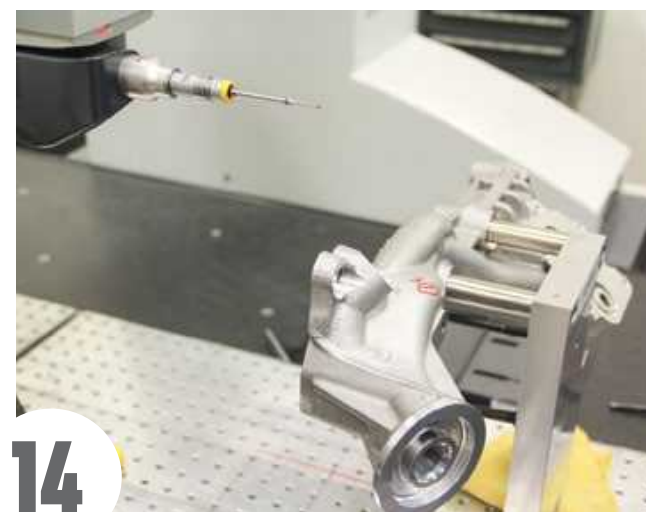


12



13

13 Each cast part is fed into a five-axis mill, where it is secured before the computer program determines the drilling and machining necessary to complete the part. The automation allows for different steps to be performed at the same time. Once completed, the part is sent for final inspection, cleaning, and packaging.



14

14 Parts are randomly selected during a run to be checked with a laser probe to determine any variances from tolerances set by the customer. This Mustang filter relocator has been secured into the machine and is in the process of being checked at hundreds of critical points inside and out.



15

15 A final inspection and clean-up before these Hot Heads Hemi (HotHemiHeads.com) heads are sent off for shipping.

16 The finished Mustang filter relocators ready for shipment to Ford. Buddy Bar has been doing aluminum casting for Ford since back in the 1960s when it did all of Ford's Cobra and NASCAR racing components.

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The Opel GT had been clunking for months, a sound I pretended was the rubber mounts for the exhaust—until I replaced them and the clunking continued. At that point,

I was forced to learn about torque tubes.

Unlike a prop shaft—which is just how Europeans and pretentious Americans say driveshaft, usually in reference to a two-U-joint, large-diameter, hollow-shaft Hotchkiss drive—a torque tube is an alternate design for power delivery, in which a small-diameter shaft running from the trans to the rearend (or the engine to the transaxle) is fully encased in a tube, and in the case of coil-sprung cars like the Opel, a Panhard rod controls the rearend's lateral movement. It's an old technology, which might lead one to believe it's inferior to a Hotchkiss drive, but then it's used on Porsches and Corvettes, which might lead one to believe that's it's the best possible technology—especially if one reads any Porsche forums.

After spending an afternoon attempting to fit the new rubber donut into place, a task most easily visualized by imagining two people trying to squeeze a hippopotamus into a pair of skinny jeans, I'm going to have to say that this quote from the CorvetteForum.com sums it up best, "Drive shaft U-joint replacement? A couple of hours. Torque Tube coupler replacement? Disassemble everything, see you again in 8 to 12 hours."

Anyway, the clunk is gone, but now it has a vibration. Torque-tube mastery yet to be attained.

➤ HOTROD.COM/Elana-Scherr

[Is the Opel's torque tube a vestige of its Buick name or a nod to its Corvette looks?



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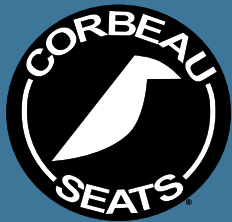
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Its air-cooled, flat-six, horizontally opposed engine design featured aluminum heads (incorporating integral intake manifolds) and crankcase, and individual iron cylinder barrels. The heads were similar to Chevrolet's standard overhead-valve design, with a conventional rocker arm and pushrod arrangement running off a nine-lobe camshaft spinning directly on the crankcase—without bearing inserts.

Crankshaft counterweights were not needed because the flat-six layout is inherently balanced, which eliminated weight, as did its air-cooled design (no radiator or water pump), aluminum heads, crankcase, transaxle, and lack of a driveshaft. And the engine's low, flat design aided in a low center of gravity and kept weight off the front of the car, making power steering unnecessary.

Turbocharging was added to the Corvair's list of unique firsts in 1962, sharing that distinction with its cousin, the Olds Jetfire. And let's not forget a four-speed manual was available, which really started get-



ting into Porsche territory when you think about it.

GM even played around with producing a single chassis for both the Corvair and Corvette. For the Corvair, the engine would be flipped to the rear, and for the Corvette, it would be flipped to the mid-engine configuration. Two disparate cars, one chassis—pretty cool.

The only place GM cheaped out was with a \$2 antisway bar for the 1960–1963 swing-axle rearend. Had the sway bar been standard on Corvairs starting with the 1960 model, the tendency for one axle or the other to tuck in under hard steering would have been eliminated. That tendency eventually killed the car's reputation—and more than a few Corvair customers, too.

The aftermarket's embrace included the epic Crown-V8 swaps that turned the docile Corvair into an exotic mid-engine sports car on the cheap. They are still in business and Corvairs are still cheap. Just saying.

➤ HOTROD.COM/Thom-Taylor



Dries the best



Do Turbocharged Engines Need Huge Cams?



© Marlan Davis

[This Ken Duttweiler-built, 600ci, race-gas-fueled Rat motor made in excess of 3,000 hp on the dyno. In daily race trim, it makes a reliable 2,500 hp. Each 100mm diameter inducer turbo weighs 77 pounds; one of them alone could support 1,800 hp.

There's no need to beat up the valve-train on a turbo motor by going for extreme lift and duration numbers. Turbo cams can be smaller than equivalent cams for normally aspirated (NA) engines operating in a similar rpm band. In fact, if a cam works through 5,500 rpm on a NA mill, it'll be OK to about 6,500 on a turbo engine in terms of its ability to feed enough air and fuel. Using just a 210-degree duration (at 0.050) flat-tappet hydraulic cam, mild heads, and 8:1 compression, one TO4-series AiResearch turbo with a 66–70mm diameter inlet inducer can deliver 600 hp at 15 psi on a 350 Chevy and 850 hp at 25 psi with race gas. A big-block 502 fitted with the same series turbo—but using a larger 76mm inlet and a 220-degree (at 0.050) cam—easily makes 700–800 hp on pump gas. A full-race, 287ci, small-block Chevy can make at least 1,500 hp on 30-psi boost with two 70mm-inducer TO4 turbos, a solid roller cam in the 250–275 degrees (at 0.050) range, and splayed valve heads.


One thing that sets many turbo cams apart is their lobe-separation angle (LSA)—115 degrees is not uncommon to reduce overlap. Turbos force-feed air on the inlet side, so early intake opening isn't needed. But exhaust backpressure can be a problem with a turbo, so there may be more pressure on the exhaust side than on the inlet; excess overlap can cause reversion. Many engine builders run slightly more exhaust timing than intake timing to control the overlap point and help get rid of the exhaust gasses. This may be done with different intake/exhaust rocker ratios instead of directly on the cam lobes.

As a turbo engine rpms higher with a given cam, stiffer valvesprings are needed. Lightweight titanium valves help on the intake, but the exhaust needs high-temp Inconel valves.

➤ HOTROD.COM/Marlan-Davis

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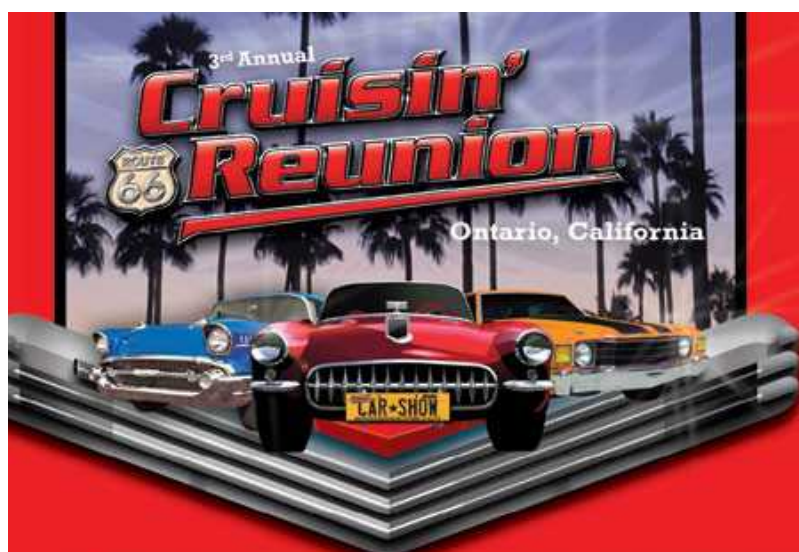


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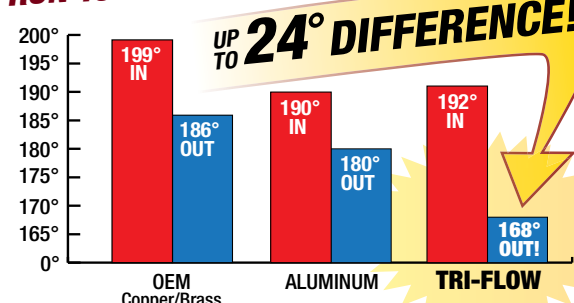
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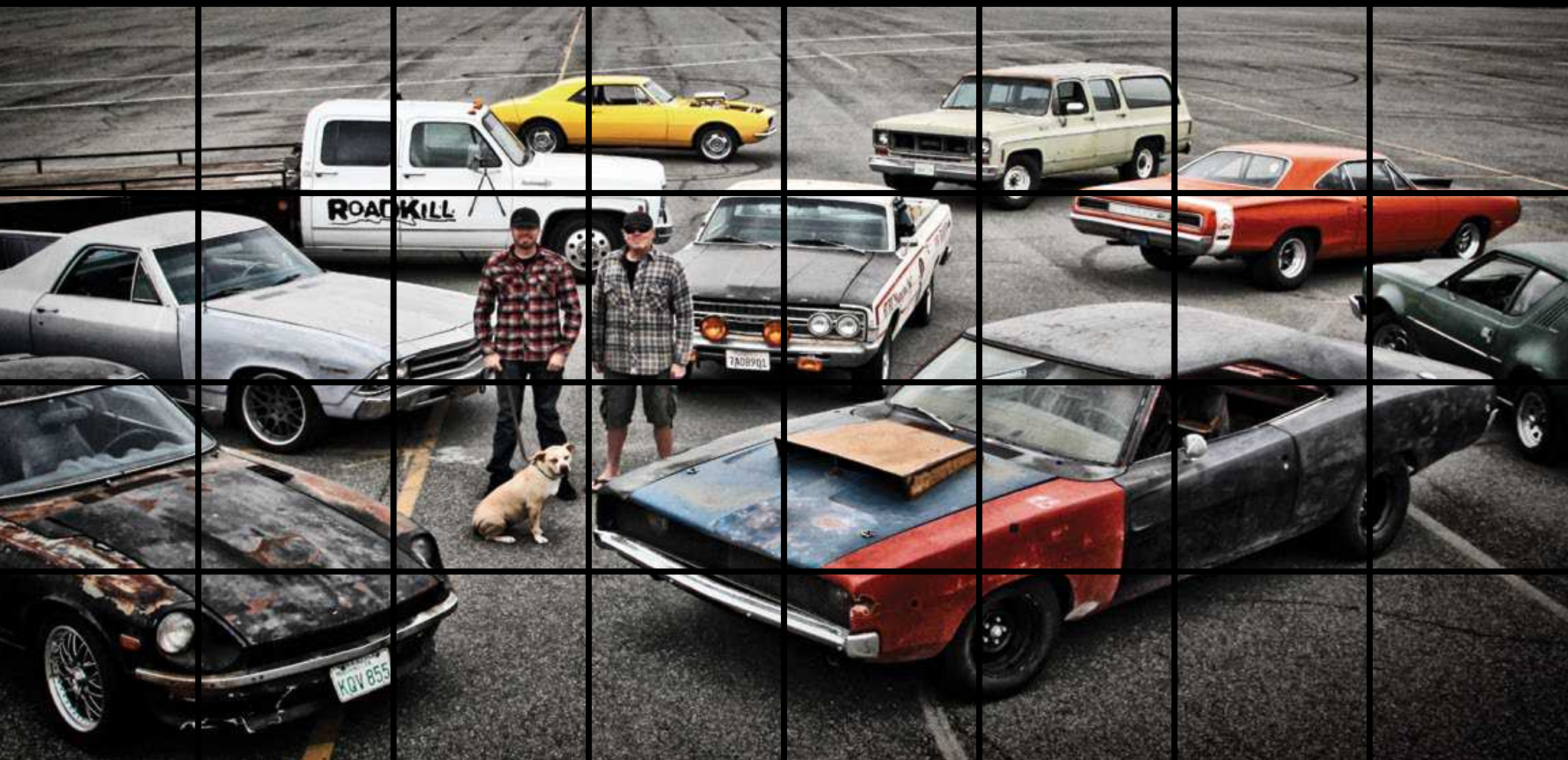


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[Moorpark, California's Gary Henthorn has a whole stable full of cool hot rods, including this dark gray 1956 Chevy pickup.



[The show-quality truck is visually perfect, but was nearly undrivable in the real world. Its built 383 small-block ran way too rich.



[A poorly implemented electric choke design on the 3x2-bbl SixShooter Demon center-carb induction system was always stuck fully closed.

The Demon Carbs' Choke in Gary Henthorn's 1956 Chevy is Stuck. We're Gonna Fix It.

✍️ 📷 Marlan Davis

THE COMBO

Back in 2007, Gary Henthorn bought a 1956 Chevy in what he calls "its original, unrestored, immobile state," then treated it to a full, frame-off restoration. The drivetrain was modernized with a built 383 small-block Chevy shifted by a 700-R4 automatic overdrive. The induction system is a relatively rare Demon Carburetion SixShooter Tri-power carburetion setup that was sold by the original, independently owned Demon company that offered it as a complete bolt-on kit that included three two-barrel carbs, an intake manifold, a fuel-distribution log, and proprietary progressive linkage. The setup looks trick and wows the crowds at weekend cruise spots, but unfortunately, it had serious driveability issues.

THE PROBLEM

Henthorn's primary complaint: "The engine seems to be running too rich and doesn't have the power it should have. I can see black smoke coming out the tailpipes. The problem occurs everywhere, but there's black smoke even when it's idling. It

feels like it's loading up. It hesitates when I get into it off a start. It doesn't have the pickup that it should. When it's cold, I have to feather the throttle to keep it running. Once it's warmed up for a while, it's easy to get going. Five years ago, I had it tuned up. It helped for a while, then it deteriorated again. Even after the tune-up, the engine never seemed to run to its potential."

THE DIAGNOSIS

We sent the SoCal-based truck to Rollings Automotive in Mira Loma. An old-school, full-service shop, proprietor Norm Rollings works on just about everything: early or late, stock or modified. "There was black smoke everywhere [when I tried starting the truck]; it was totally flooded," Rollings says. "It would not accelerate." Based on years of experience, he suspected a choke problem. "For me, diagnosing this problem is like when you walk over in serious distress to the doctor, and he can tell pretty quick you're having a heart attack. The motor was blubbering, flooding, and starving for air. You could tell there wasn't enough air for the fuel going in. I

pulled the air-cleaner lid off and saw the [choke valve] was fully closed. I pushed down on the valve with my finger to open up the door while one of my crew cranked the 383 over. It then started up fine. Now I knew for sure it was the choke."

Even after warm-up, the choke wouldn't self-release and remained in the fully closed position, causing the truck to run rich at all times. That fouled the spark plugs, making the problem worse yet. Liquid fuel washing down the cylinder walls also diluted and contaminated the engine oil. Other driveability problems included a persistent low-vacuum condition and an exhaust leak.

THE CHOKE ISSUE

A choke system provides the extremely rich mixture needed to start and operate a cold engine. On its face, that sounds pretty simple, but getting the choke to function properly on a high-perf engine has caused plenty of grief for hot rodders. It sure doesn't help if the choke's basic design is flawed in the first instance—like on original Demons, apparently.

Like many carbs, the Demon electric choke has a bimetallic thermostatic coiled spring inside an adjustable cover that on a running engine is heated by electric current, expanding to pull off the choke. There's no direct correlation between the time it takes the coil to heat up and fully expand versus the engine's real-time air/fuel mixture requirements; they aren't always "in sync," so the choke may close during a hot restart when the engine is still warm but the coil has already cooled down.

That's why most electric choke designs have historically used a vacuum qualifier (vacuum pull-off) system. Typically, as engine vacuum comes online, it causes a piston in the choke housing to move, overriding the cover's spring tension to open the choke valve to a preset point. A dead-cold engine cranks slower than a hot engine; the lower the rpm, the lower the vacuum.

If the coil spring in the choke cover is tightly coiled (as it is on a dead-cold engine), it overcomes the relatively weak, dead-cold-engine vacuum signal to hold the blade nearly closed in the fully enriched position longer. If the spring is not fully

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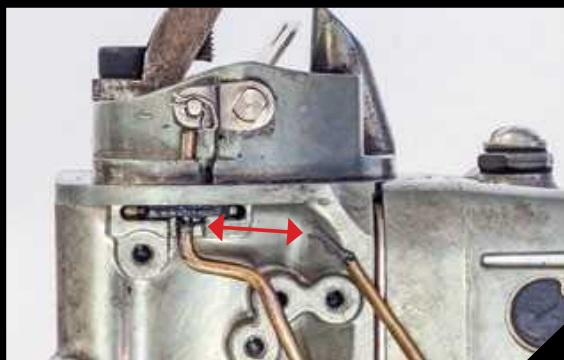


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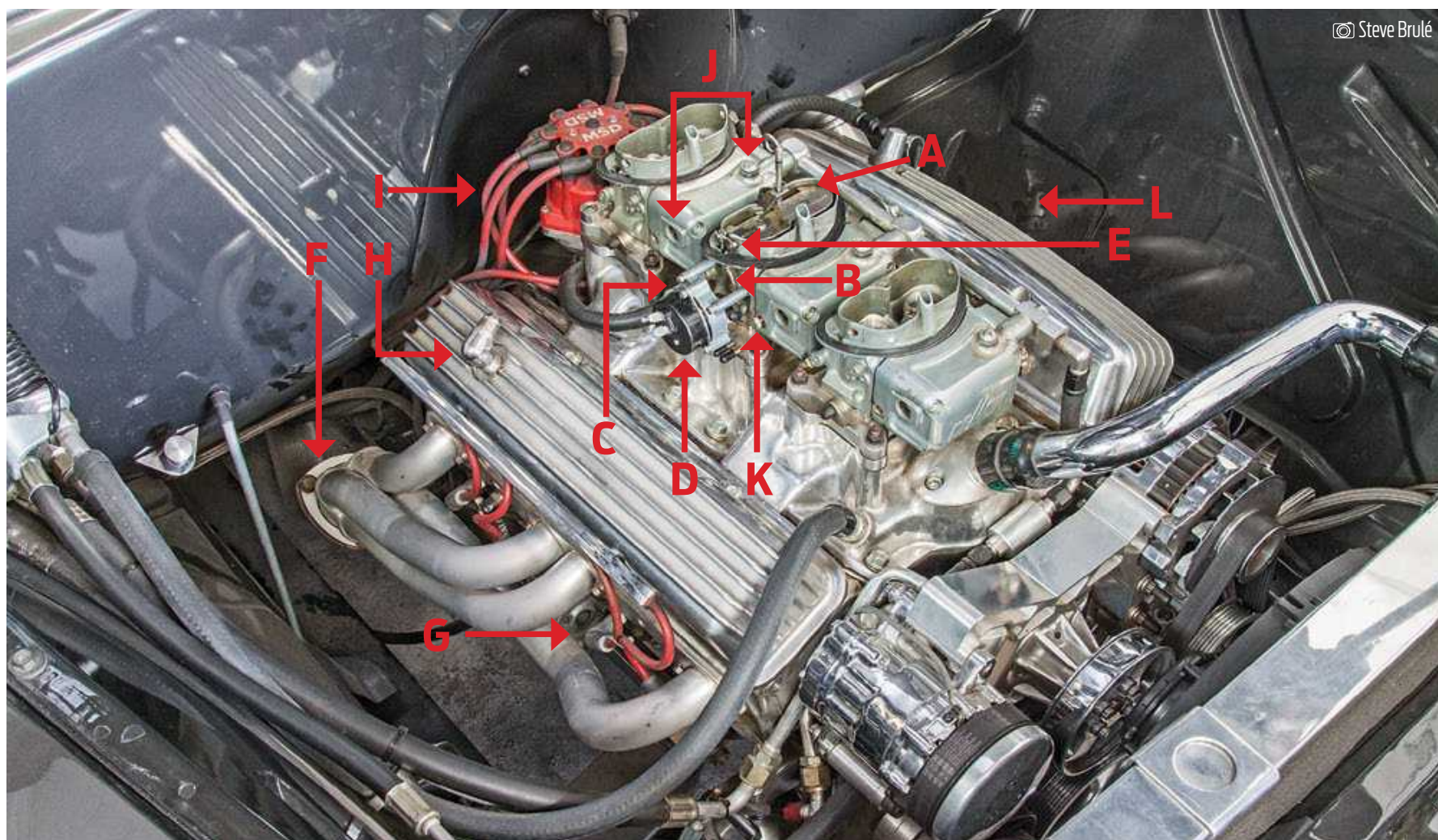
[The Rollings Automotive crew—owner Norm Rollings, Phil Soden, and Jim Israel (*shown*)—solved the truck's persistent choke issues.



[Messing with the choke coil, the linkage, and, ultimately, adding a positive stop clip under the air horn ring (*arrow*) got the choke working OK.



[No longer a trailer queen, Henthorn's truck doesn't choke under pressure and now has plenty of pick-up.



© Steve Brulé

[Rollings Automotive re-engineered and repaired the choke and choke linkage, installed fresh spark plugs, changed the oil and oil filter, adjusted the carbs and timing, and changed out the brake vacuum booster. The **red-numbered** callouts refer to detailed photos on the following pages.

- A** Choke function and design issues (**01–05**)
- B** Repair choke linkage defects (**06–11**)
- C** Adjust fast-idle speed screw (**12**)
- D** Replace choke cover and thermostat (**13**)
- E** Fabricate choke-valve limiter stop (**14**)
- F** Repair exhaust leak (**15**)

- G** Replace fuel-fouled spark plugs (**16**)
- H** Change fuel-contaminated oil and filter
- I** Advance ignition timing
- J** Raise rear carburetor float level
- K** Set curb idle fuel mixture and idle speed
- L** Replace leaking brake vacuum booster (**17**)

compressed or the engine is hotter (so it cranks a little more quickly), engine vacuum overcomes the generated spring tension to begin opening the valve

more quickly. In sum: The less tightly wound the coil is, or the stronger the vacuum signal, the quicker the choke opens.

Although the original

Demons closely resemble typical Holley carburetors in many aspects, unlike a legacy Holley, the Demon electric choke system has no vacuum qualifier.

Also unlike a Holley, a Demon's choke valve (blade) is centered on the throttle shaft. Holley's blade mounts off-center, with more blade to the rear than to the front; this "unbalanced" condition lets airflow pull the blade open easier and quicker to begin leaning out the mixture.

On a traditional Holley, the choke tower is also offset 0.060 inch toward the rear of the main body, versus the Demon location that's centered over the bores (the primary side on a four-barrel). This may slightly reduce the Holley carb's airflow potential, but it helps improve

“I don't care what kind of a challenge you bring me, we can always MacGyver it.” — Norm Rollings



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choke efficiency when the choke engages. If a Holley choke has problems, it tends to fault “open” instead of “closed.”

A vacuum qualifier may not be needed, *provided* the choke blade is unbalanced, the choke tower orientation is located slightly to the rear off-center of the main body casting, the choke cover with bimetallic spring has sufficient rich/lean adjustment latitude, and the choke blade incorporates sufficiently large rear notches. Based on our experience, an original Demon fails at least three out of four of these parameters (it

at least has a notched blade, although the notch may not be large enough to overcome the other deficiencies).

If all this wasn't problematic enough, Rollings also found that the linkage itself was in bind and not properly engaging or releasing. It took some hard-core troubleshooting to go through and deal with all these issues!

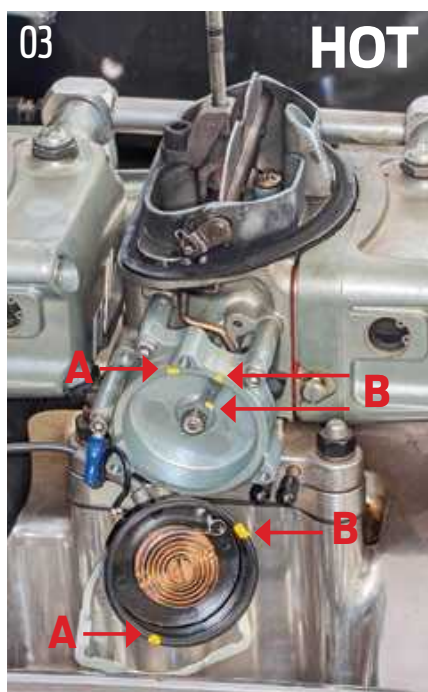
THE CHOKE FIX

The binding linkage was the initial suspect. An overly large top linkage-rod clip and a missing lower-rod clip caused,



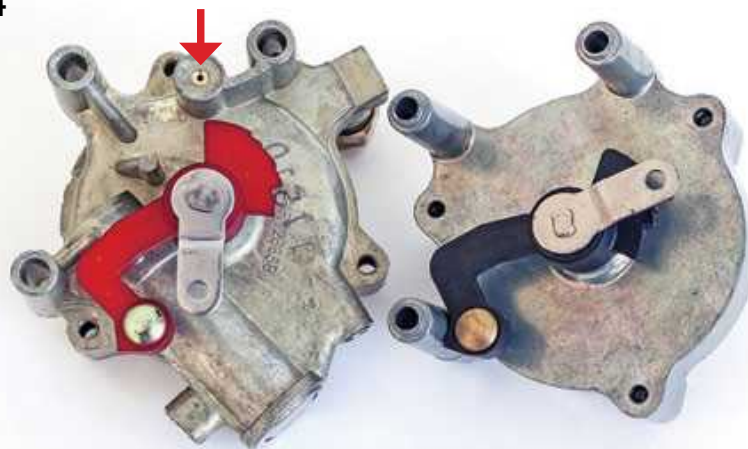
01

01 Traditional Holleys (left) use a more efficient choke-release mechanism than original Demons (right). Holley's choke tower is slightly biased toward the rear of the main body, the choke blade mounts off-center on the shaft, the choke cover has greater adjustment range, and the choke housing has a vacuum qualifier. Demons try to compensate with rear blade slots, but they were ineffective on Henthorn's motor.



02–03 On a cold engine, an electric choke cover's bimetallic spring coils are tightly wound, which shuts the choke valve in the air horn tower, restricting airflow into the engine to richen the mixture (cold position, A). As electric current heats the spring, it uncoils and works through the linkage rod to open the valve (hot position, B).

04



04 Both Holley (left) and Demon (right) have the same choke housing mounting bolt pattern, but the Demon lacks the functional vacuum qualifier passages present in the Holley choke housing (arrow), main body, and throttle plate.

05



05 The engagement lever on a Holley choke housing has an extra lever portion (left, A). Engine vacuum causes the piston inside the round bore (B) to act on the lever, overcoming coil spring tension and permitting the air horn's choke valve to open to a preset point on a warm engine that still has a cool coil. A Demon housing (right) has no such provisions.

06



06 Initially, the linkage was thought to be the main problem; in as-received condition, it was hitting the air cleaner base, binding in several places, and failing to properly engage the choke housing operating lever and cam due to missing or incorrect retaining clips.

07



07 Rollings added the missing clip at the bottom end of the choke rod that had both prevented the linkage from positively engaging the choke housing operating rod, as well as not holding the rod under the fast-idle cam.



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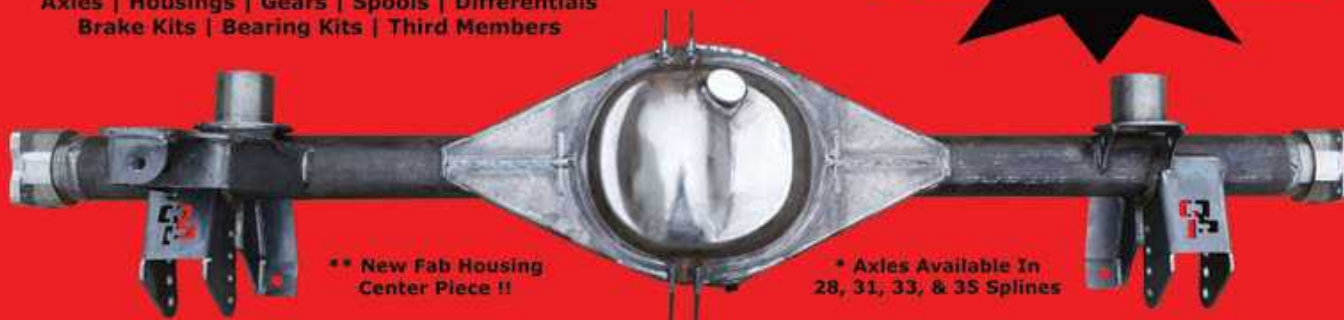


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respectively, air-cleaner base interference and choke housing cam-engagement issues. This was corrected with the proper clips and a fabricated plastic bushing (see photos for details).

These tweaks, plus properly adjusting the fast-idle screw permitted the choke to “pull-off” after warm-up, as well as going a long way toward correcting the dead-cold choke start-up issues. Still, turning the choke cover rich or lean did not yield optimum pull-off; it was either too quick or too slow, causing problems about a third of the time on a dead-cold start. Rollings replaced the original Demon cover with a new Holley cover (they physically interchange), which seemed to improve dead-cold choke performance consistency.

But not on a hot-day restart. After the truck was shut down and allowed to sit for several hours—long enough to let

the coil cool off—restarting a semicool engine caused full choke engagement and enrichment on 90-degree days. This is where a vacuum qualifier would have helped. Rollings’ simple improvised solution: Fab a stop to prevent the choke-valve from fully closing.

THE OTHER FIXES

Rollings went on to fix the exhaust leak that he found at the header collector-to-exhaust pipe junctions. He installed a fresh set of spark plugs, set the center carb’s idle mixture screws to achieve the smoothest idle, and readjusted the rear carb’s slightly low float level to the middle of the see-through sight-glass. For improved throttle-response, total ignition advance was increased from the as-received 32 degrees to 38 degrees. Seven quarts of Lucas Hot Rod and Classic 20W-50 High Zinc motor oil

08 Choke blade to air cleaner interference is a known problem on Demons. Demon even includes a warning to that effect on the blade. Also note the blade is flat; some legacy Holley blades have a slight curvature, which acts like an airfoil to provide further aid in properly opening the choke.

09 Someone had installed a too-large cotter pin to retain the top of the choke linkage rod on the air-valve shaft. The oversize pin hit the air-cleaner base under shaft rotation. Rollings installed the correct small retaining pin (A). Rollings’ fabricated plastic spacer is also visible (B, see photos 10 and 11 for more details).

10 With both clips in place, there was now occasional interference at the top between the rod and choke air-valve shaft lever. Rollings slightly spaced the rod a tad inboard by fabricating a spacer from a plastic bushing. He notched it so it could butt up against the rod’s right-angle bend without folding over.

11 You can see how tight the linkage rod-to-throttle shaft engagement lever gets to the air cleaner base, and this is Demon’s own trick air cleaner supplied with the SixShooter kit. With a properly sized clip and Rollings’ bushing, there was no more air cleaner interference or binding linkage—at least on this installation.

12 The fast idle speed screw had been fully backed out (maybe in frustration because the choke wouldn’t work). Rollings turned the screw in to obtain a 1,400–1,500-rpm fast-idle speed on the choke cam’s first (real cold) step, and about 1,200 rpm on the second. It’s shown here (arrow) with the carb upside-down on the bench for clarity.

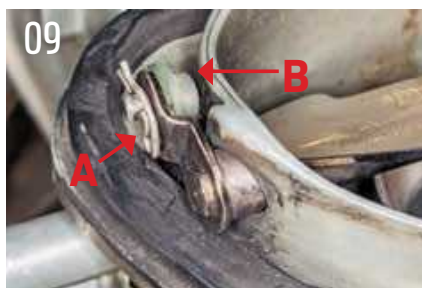
13 The linkage fixes let the choke pull-off after warm-up, but cold-start behavior remained inconsistent. Rollings installed a new “real Holley” choke cover (right) in place of the Demon cover (left). The old spring may have just been “tired,” but Holley’s spring appears to be made of slightly thinner or different material; in any event, the choke now pulled off quicker and performed consistently on dead-cold start-ups.

14 With no vacuum qualifier, choke pull-off on hot-day restarts remained a problem. Rollings drilled a 0.042-inch hole in the choke shaft to accept a small 0.035-inch clip that serves as a stop. As the rod rises to close the choke when the bimetal spring is cold, the clip hits the bottom of the air horn base’s choke-rod pass-through, preventing the blade from fully closing.

08



09



10



11



12



13



14





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plus a new Wix oil filter replaced the old, fuel-diluted oil. But post-tune-up, engine vacuum remained lower than normal. This was traced to a defective vacuum brake booster. A new Summit Racing booster was installed to replace it.

THE RESULTS

As requested by Henthorn, the truck's primary driveability issues have been resolved. The choke now operates as well as can be expected from a less-than-stellar design. The overrich condition is gone, and the truck starts, accelerates, and cruises well.

LESSONS LEARNED

Things don't always work as they should right out of the box. "Be prepared to make mods to make it work," Rollings says. "We are trying to service the customer that wants the niceties of today, the conveniences of modern technology. Today's casual rod-der expects his ride to start up without thinking about it; in the old days, we probably would have just thrown away the choke. But we took what was presented to us and made it work. It's not in the book anymore, it's in somebody's brain." Holley now owns the rights to Demon products and is in the process of redesigning Demon's old modular carburetor lineup. Holley also offers its own small-block 3x2 setup with a standard Holley choke design.

PARTS AND PRICES

Includes the major parts required to fix the problem. Labor, shipping, sales taxes, or miscellaneous small hardware and linkage clips are not included. Priced 07/11/15; subject to change.

| BRAND | PART DESCRIPTION | PART NO. | AMT. | PRICE | |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------|------------|------|--------------|-----------------|
| | | | | SOURCE | COST |
| AUTOLITE | PLUG, ignition spark, copper core, gasket seat, 14mm thread, 5/8" hex, 3/4" reach, projected tip, resistor, D13 | 3924 | 8 | Summit | \$23.92 |
| CHAMPION | FLUID, brake hydraulic, DOT 3, FMVSS 116, SAE J1703, 12 fl oz | 4057K | 1 | Summit | \$2.99 |
| DORMAN | NUT, self-locking, all-metal, 3/8-16 threads x 9/16" wrenching hex, A-83, Grade 8, zinc-plated, 7-pack ¹ | 005750BP | 1 | O'Reilly | \$3.99 |
| HOLLEY | CAP, choke thermostat, w/ gasket | 45-258 | 1 | Summit | \$28.09 |
| LUCAS OIL | OIL, engine, conventional, hot rod & classic car, 20W-50, 2,100 ppm ZDDP, 1qt bottle ² | 10689-1 | 2 | Summit | \$11.94 |
| | OIL, engine, conventional, hot rod & classic car, 20W-50, 2,100 ppm ZDDP, 5qt jug ² | 10684-1 | 1 | Summit | \$25.97 |
| SUMMIT | BOOSTER, power brake vacuum, universal, 7" od dual-diaphragm, chrome | SUM-760121 | 1 | Summit | \$191.97 |
| WIX | FILTER, engine oil, spin-on, 13/16-16 thread, 5.178" HT x 3.660" od (8-11-psi relief valve, 21 micron, 9-11 gpm flow, 270-psi burst) | 51060 | 1 | Summit | \$6.75 |
| | | | | TOTAL | \$295.62 |

NOTES: ¹Six pieces used. ²Seven quarts total required to refill oil system.



15] The leaking gasketless header collector-to-exhaust pipe connections were held together by bolts and nylon-insert self-locking nuts. Nylocks are only good through 250 degrees F max, and exhaust heat had melted the locking element (*left*), loosening the connection. Dorman all-metal locknuts (*right*) cured the leak. Such all-metal, alloy-steel locknuts are generally good through 450 degrees.



16] For header-pipe clearance, the small-block's aluminum heads were running long-reach, gasketed ACCEL PN 416S spark plugs that have a short backshell. They were fuel-fouled (*left*). Accel "shorties" can be hard to find, but it turns out Autolite PN 3924 (*center*) is virtually the same length. For reference, the different-series Champion plug (*right*) illustrates the longer backshell typical of most contemporary standard plugs.



17] As for the vacuum leak, there were no problems with the intake or carb flange gaskets. All vacuum ports were properly plugged. The culprit was a power brake vacuum booster that wouldn't hold vacuum. A new replacement Summit Racing chrome 7-inch dual-diaphragm booster easily held over 28 in-Hg of vacuum!

Contacts

AUTOLITE, FRAM GROUP IP LLC; Lake Forest, IL; 855.200.5200; Autolite.com

CHAMPION BRANDS LLC; Clinton, MO; 800.821.5693 or 660.885.8151; ChampionBrands.com

DORMAN PRODUCTS INC.; Colmar, PA; 800.523.2492 (customer service) or 866.933.2911 (tech); DormanProducts.com

HOLLEY PERFORMANCE PRODUCTS; Bowling Green, KY; 800.HOLLEY1 (nearest dealer), 270.781.9741 (tech), or 270.782.2900 (general); Holley.com

LUCAS OIL PRODUCTS INC.; Corona, CA; 800.342.2512 or 951.270.0154; LucasOil.com

O'REILLY AUTO PARTS; Springfield, MO; 800.755.6759 (store customer service), 888.327.7153 (internet order support), or 417.829.5727 (general); OReillyAuto.com

ROLLINGS AUTOMOTIVE INC.; Mira Loma, CA; 951.361.3001; [Plus.Google.com/+RollingsAutomotiveIncMiraLoma](https://plus.google.com/+RollingsAutomotiveIncMiraLoma)

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Rick Politi From Burlington, Vermont, Asks...

Are There Power-Brake Systems That Don't Rely on Vacuum?

✍️ 📷 Marlan Davis

Q:

I'm thinking about building a performance big-block. Power-brake assist is a necessity. I don't want to rely on intake vacuum with a big carb and cam. Is there any way to drive any type of brake booster without using vacuum?

A:

There are at least two brake power-assist technologies that don't rely on engine vacuum. Both solve the big-cam/no-engine vacuum syndrome and both provide better hood, fender, and valve-cover clearance compared to a bulky, large-capacity, dual-diaphragm vacuum brake booster—the size that's really needed to properly actuate a performance four-wheel, disc-brake setup. Instead of engine vacuum, these systems rely on hydraulic pressure to provide the boost.

Traditionally, the best known of these is so-called Hydro-Boost technology, first used on domestic production cars beginning in the late-1970s. A conventional, engine-driven, power-steering pump supplies fluid under pressure to reduce pedal effort. The pump can be used just to run the brakes or for both the brakes and the power-steering system. Hot rodders have been pulling the systems off salvage-yard vehicles for years; they're most common with diesel engines as well as larger gasoline-fueled pickup trucks. Ford also used Hydro-Boosts on 1996–2004 4.6L V8 Mustangs.

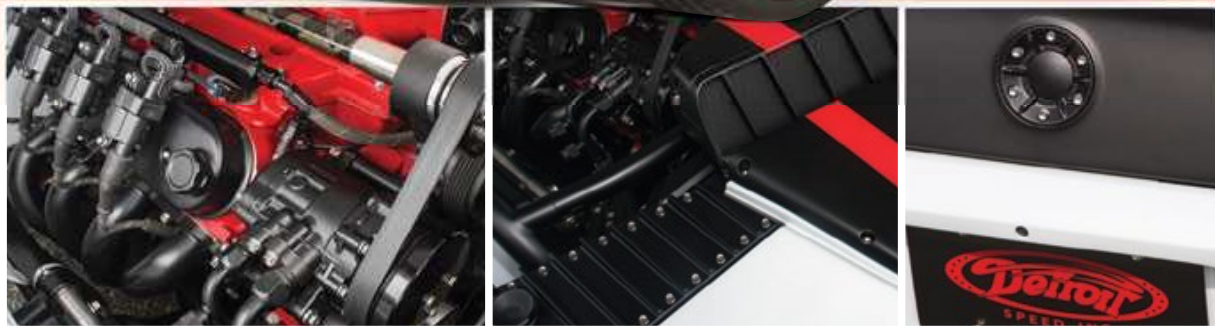
The early, 1980s-era systems are fairly heavy and bulky, but by the mid-1990s the mass had been considerably reduced (one benefit of the never-ending increase in fuel-economy standards with the consequent need to shave every pound of weight possible). Better yet, there are now custom, good-looking, aftermarket retrofit kits and parts for a variety of muscle cars and hot rods that are specifically tailored for a retrofit application. Hydratech Braking Systems is one purveyor of these kits.

A Hydro-Boost alternative is electro-hydraulic brake booster systems. These setups use an electric pump instead of a belt-driven power-steering pump to supply hydraulic assist. The electric pump can mount anywhere, remotely from the master cylinder itself, thereby saving even more engine-bay and firewall space. Relatively crude early versions were used by Buick on Grand National V6 turbo cars in the mid-1980s, where they had a dubious reliability reputation. Today's hot rod retrofit integrated kits have been perfected, and



[AEW's Mark Sanchez installed a 1999–2004 Ford Mustang V8 Hydro-Boost system in his 1968 Thunderbird to clear its swapped-in 4.6L DOHC Cobra motor. Sanchez says the new motor is even wider than the T-bird's original 429ci big-block.

ASK MARLAN A TECH QUESTION: PITSTOP@HotRod.com



Best of the Best!

SEMA "Battle of the Builders" Award Won By ARP-Equipped Camaro Of Kyle Tucker

This past SEMA Show saw 125 builders vie for the inaugural "Battle of the Builders" honors. And in the end, the innovative 1969 Camaro built by Kyle Tucker and the crew at Detroit Speed was selected the winner by his peers.

The Camaro, owned by Angelo Vespi, is a virtual showcase for ARP fasteners. In fact, it was in ARP's booth at the SEMA Show.

In addition to the head and main studs, rod bolts and various other ARP

fasteners employed by Mast Motorsports in building the Camaro's 800+ horsepower supercharged LS engine, Kyle used a wide range of ARP polished stainless steel studs and bolts for the driveline, suspension and accessories.

They are available in complete Engine & Accessory Fastener Kits, by application, and by size in handy 5-packs. Check out the big 2015 ARP catalog online (free hard copy upon request) and see what's available to enhance your ride.

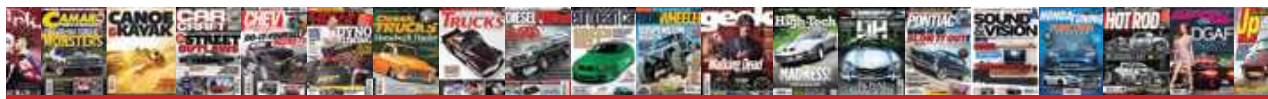


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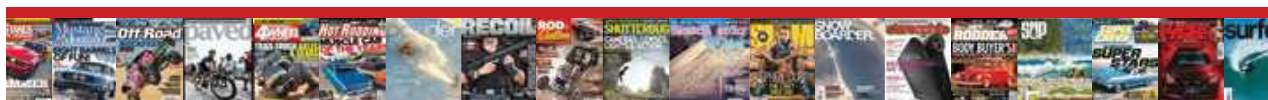
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1996–2004 FORD MUSTANG HYDRO-BOOST SYSTEM

Because the Ford-style, Hydro-Boost-to-master-cylinder mount has a unique vertical pattern instead of the standard horizontal pattern, it must be used with the corresponding master cylinder intended for a Hydro-Boost application. There were two different systems: the 1996–1998 first design and the 1999–2004 second design. The main difference is the firewall attachment angle and mounting pattern. Most nonstock retrofits require fabricating an adapter bracket for earlier firewalls, so either ends up equally suitable for hot rod use. On the early, first-design system, DOHC 4.6L Cobra variants had larger brakes, making that setup more desirable (but rarer). Ford Service parts, unless otherwise indicated, have been discontinued and are listed for reference only. Quality Cardone Industries parts are available nationally through major auto parts chains. The “Hollander No.” refers to the nationally-recognized salvage-yard parts classification and interchange system used by most wrecking yards. V6-powered Mustangs of this era still had a conventional vacuum brake booster. Special thanks to AEW for help compiling this list.

| MODEL YEAR | APPLICATION | MASTER CYLINDER | | | HYDRO-BOOST | | |
|------------|------------------------------|-----------------|----------------------|-----------|---------------------------|----------------------|-----------|
| | | FORD SERVICE | CARDONE | HOLLANDER | FORD SERVICE | CARDONE | HOLLANDER |
| 1996–1998 | 4.6L V8 SOHC | F6ZZ-2140-AD | 13-2760 | 541-1022 | F6ZZ-2005-BA | 52-7344 ¹ | 540-1202 |
| | 4.6L V8 DOHC | F6ZZ-2140-BB | 10-2761 ¹ | 541-1021 | F6ZZ-2005-CA | 52-7346 ¹ | 540-1201 |
| 1999–2004 | 4.6L V8 w/o traction-control | XR3Z-2140-AA | 13-2937 | 541-1119 | XR3Z-2005-AA ² | 52-7360 ¹ | 540-1249 |
| | 4.6L V8 w/ traction-control | XR3Z-2140-BA | 13-2938 | 541-1118 | | | |

NOTES: ¹Remanufactured. ²Still available from Ford as of June, 2015.



[The main design break between the early (left) and late (right) Mustang Hydro-Boost designs was a change in the Mustang’s production firewall, which required a different rear mounting bracket. Complete early and late take-outs like these are available for \$200 from Crossroads Mustang, a SoCal wrecking yard.

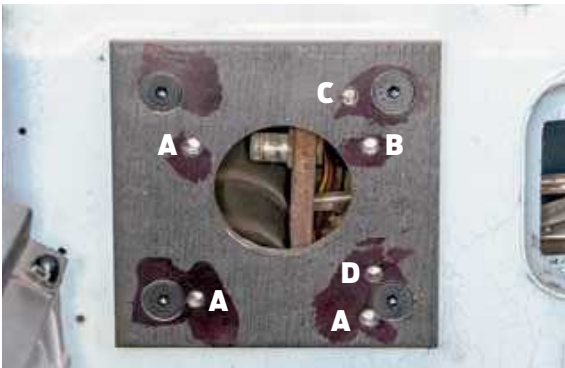


[Seen at McMillan’s Speed & Fab, this is a typical compact ABS Power Brake electro-hydraulic master cylinder with hydraulic pump. The hydraulic portion can be remotely mounted anywhere on the vehicle. These systems are capable of generating pressures as high as 1,800 psi—assuming the rest of the brake system, including the brake pedal, is properly configured.

TEN Archives



[Big cam, no vacuum for your power brakes? Consider a Hydro-Boost system pressurized by the power-steering pump. This is a typical Hydratech Hydro-Boost unit with an integrated master cylinder and reservoir unit. This version has the hydraulic system on the fender-side for better clearance with tall valve covers.



[Sanchez made an adapter plate to mate the 1999–2004 unit to the old T-bird firewall pattern. Pound out the OE Hydro-Boost mounting plate studs. Drill and tap new holes (A) in the adapter plate for standard capscrews. There’s no wrenching clearance at OE Hydro-Boost hole location B (oops); drill hole C in the factory plate and the adapter plate to get clearance. D is a dowel-pin hole. A 1996–1998 plate would be similar, except the large center pass-through hole is lower and no dowel pin is used.



[This ABS electro-hydraulic unit is being installed by McMillan in an old Lincoln. On this type of booster, only the master cylinder needs to attach directly to the firewall, making it potentially the best brake power-assist solution on cars with limited engine and inner fender clearance.

custom-car builders such as McMillan’s Speed & Fabrication swear by kits made by ABS Power Brake. Of course, a good electric system with a high-output alternator is mandatory, but an electric system upgrade is almost routine these days, what with increasingly common electric fans, electric water pumps, electric fuel pumps, nitrous oxide systems, and other big electric power consumers.

Contacts

- ABS POWER BRAKE INC.; Orange, CA; 714.771.6549; ABSpowerBrake.com
- ADVANCED ENGINEERING WEST (AEW); Mira Loma, CA; 626.222.4648; email: aewperformance@gmail.com
- CARDONE INDUSTRIES; Philadelphia, PA; 800.777.4780 (customer service) or 888.280.TECH (tech); Cardone.com
- CROSSROADS MUSTANG; Mira Loma, CA; 800.443.3987 or 909.685.7421; CrossroadsAutoParts.com
- HOLLANDER LLC; Plymouth, MN; 800.825.0644; HollanderInterchange.net or HollanderSolutions.com
- HYDRATECH BRAKING SYSTEMS; Lebanon, TN; 615.449.8261; HydratechBraking.com
- MCMILLAN’S SPEED AND FABRICATION; Oxnard, CA; 805.278.3900; SpeedAndFab.com

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"Heart Transplant," Sept '11, p. 58



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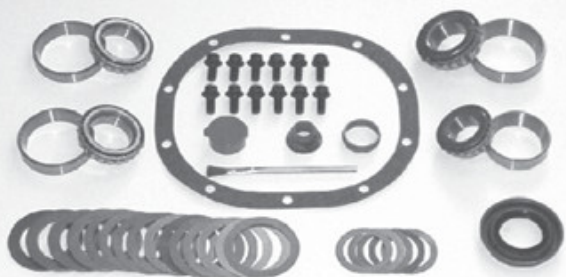
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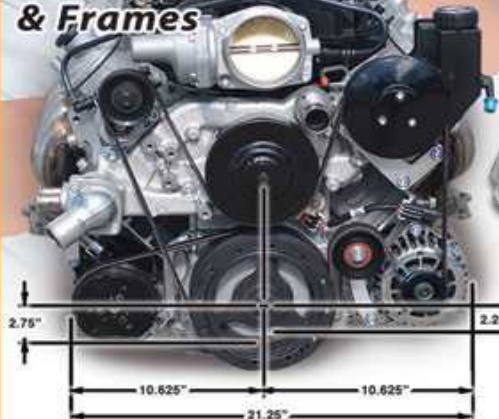
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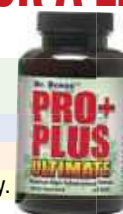
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How Wrecked Is Wrecked?



It's interesting how perception changes over time. In my head, a 1970 Duster is still \$800 because that's what I've spent on 'em so many times. In reality, it's become pretty hard to find those cars, and when I do, people want stupid money for them. But my budget is still \$800, so I end up buying trashier versions of my favorite body styles. The junk that would have been crushed 20 years ago looks like a perfectly reasonable project these days.

I used to walk away from a car purchase if the body had even a small rust hole in the trunk. These days, I hardly care if the whole floor is missing. I've seen guys build nice hot rods out of wadded-up sheetmetal salvaged from desert gullies. So many reproduction parts are available now, and there are so many affordable welders, that it opens up the possibilities for which cars are affordably repairable.

Another thing that's given you freedom to buy cheaper, junkier cars is the trend toward ratty muscle cars that look rough, but have a slew of upgrades to make them run and drive well. Unlike the rat-rod movement, where many cars are basically art

projects that drive around, the guys building ratty muscle cars tend to focus on performance over pulchritude, or at least daily driveability instead of just holding down the garage. If you don't bother with stuff like upholstery or even window glass—as I have not on my General Mayhem 1968 Charger—you have leftover money for goodies. And it's kind of a look, anyway.

Finally, another reason for starting with a really trashy car: if you buy a middle-of-the-road project car, you may end up replacing everything, anyway. If you're a guy who wants a perfect car, you might buy a \$10,000 car to start with and then replace the quarter-panels, the interior, and then maybe the fenders because they were loaded with more filler than you originally thought. If you're replacing everything anyway, why not start with a cheaper car? It costs the same to replace a really mangled quarter-panel as it does to change one that's only sorta bad.

That's my money-saving advice for the day. How far gone does a car have to be before *you* consider it worthless?

➤ HOTROD.COM/David-Freiburger

[I'm not being facetious when I say this 1970–1974 Dodge Challenger is perfectly restorable. Bummer the doors and fenders are gone, but you can buy that stuff new or have fun combining swap meets for beautifully mismatched doors. Patina'd muscle cars are in.



BEHIND THE SCENES

We are working on **MotorTrend OnDemand.com**, a new video outlet for nothing but car stuff. It's like Netflix for gearheads. It should be live mid-August 2015. Please check it out.

If you get this magazine right when it goes on sale, you might still have time to get in on the new **HOT ROD Drag Weekend** event! It's October 29–31, 2015, running from Tucson to Phoenix to Fontana. If you missed it, check the coverage at **HOTROD.com**.

Car I Most Wanted to Build on the Day I Wrote This This is a rare moment, because I don't have room in my brain for another car dream today. Too many others clogging up the space.

Best Instagram Pic This Month



📷 Larry Chen

[Mason Laurent, an 18-year-old from Brussels, Wisconsin, discovered **HOT ROD** when his family bought him a magazine subscription. He rebuilt this 1973 Firebird in three months, including the paint he sprayed himself.

Coming Next Month: Big-Block Chevy Turns 50

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